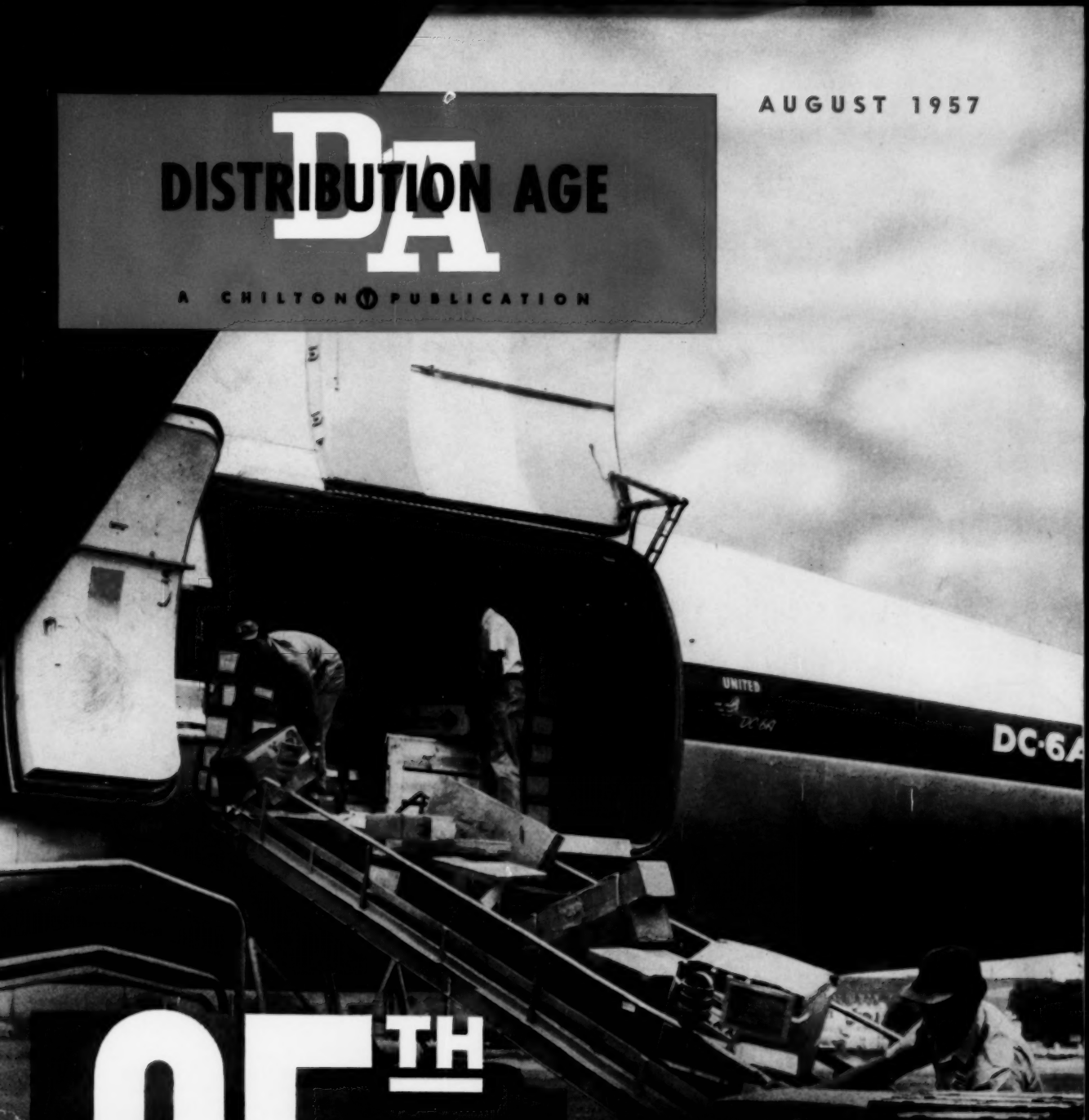
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25TH ANNIVERSARY OF AIR FREIGHT

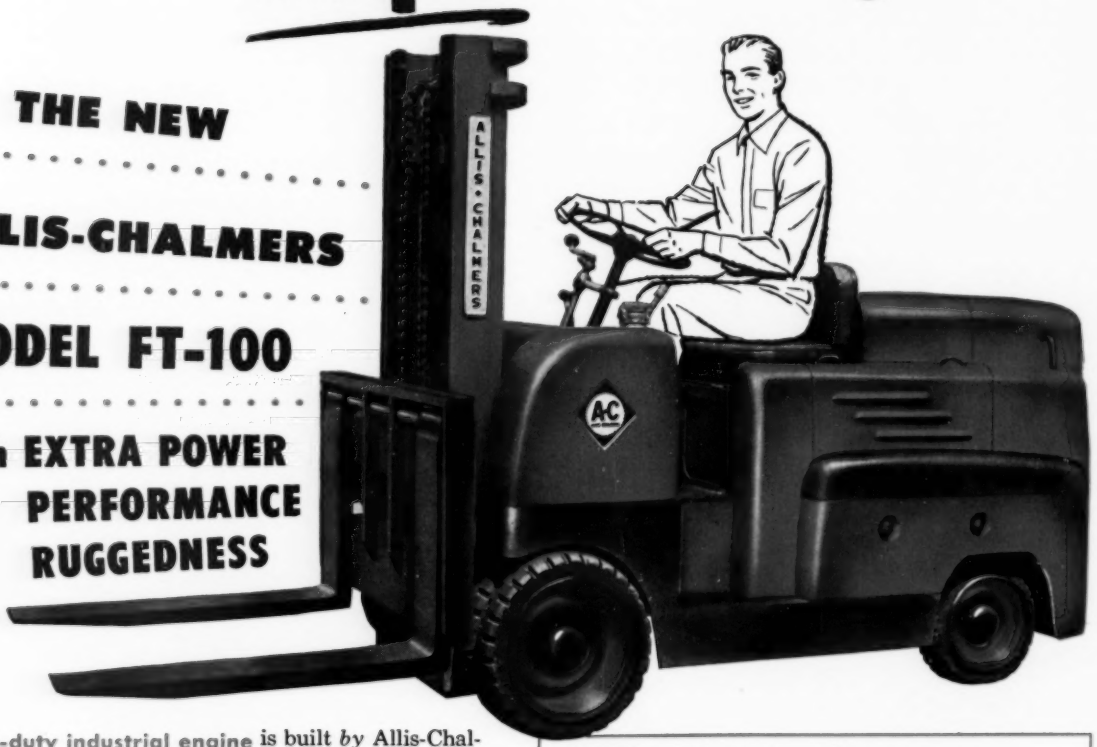
Here's a 10,000-lb lift truck that's Right for the job!

THE NEW

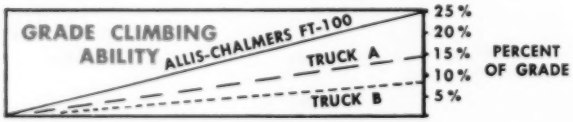
ALLIS-CHALMERS

MODEL FT-100

with EXTRA POWER PERFORMANCE RUGGEDNESS



Heavy-duty industrial engine is built *by* Allis-Chalmers specifically *for* lift truck service. This large (230-cu in. displacement) engine provides high torque at normal engine speeds, *gives the truck power enough to carry a full load up a 25-percent grade.* User records show Allis-Chalmers industrial engines not only outperform others, but operate many hours longer before overhaul. Available in diesel, gasoline or LP gas.



Workingest truck in its class. The FT-100 has the extra weight, traction and operator controls for superior performance. Its added weight is well placed to provide stability for heavy loads and high lifts. Excellent traction means extra usefulness, ability to work under adverse conditions. Controls are simple and positioned much like those in a car for easy handling. This new truck has standard ITA "shaft-type" fork mounting which permits using a wide range of attachments.

Outside turning radius: 100 in.
Over-all height: 83 in.; stacking height: 110 in. with standard mast
Width: 52 in.; length (less forks): 107½ in.

Power steering and power shift transmission are available as extra equipment.

Rugged industrial-type frame. Welded construction assures complete alignment of parts for reduced maintenance and longer truck life. New roller-mounted "extra lift" mast provides up to 19 percent higher lift without increasing the over-all lowered height.

The FT-100 has quality construction and functional design that includes unusual accessibility for service and maintenance. Let your Allis-Chalmers material handling dealer tell you more about this 10,000-lb lift truck that's *right for the job*. Send for Bulletin BU-334A.

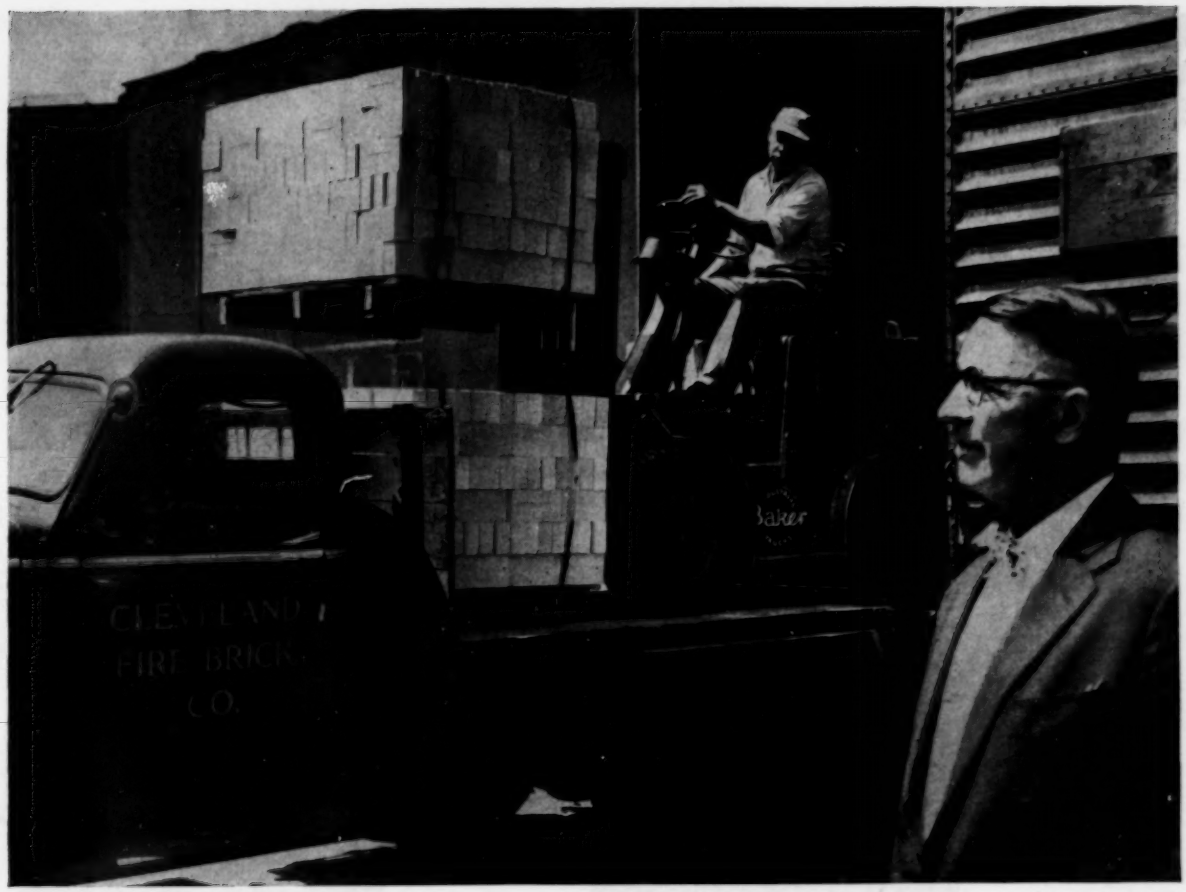


ALLIS-CHALMERS, MATERIAL HANDLING DEPT., BUDA DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

BH-53

Circle No. 1 on Card, Facing Page 83, for more information



We cut our time unloading boxcars from 16 to 4 hours!

—John Tilden, Pres., Cleveland Fire Brick Company

"Refractory brick and bagged materials are shipped to us in boxcars or highway trucks. It used to take us two full days to unload a carload of brick by manual methods—using two men with hand clamps—seven bricks per clamp. Today we can do the job in about 4 hours with a Baker YARDLOADER fork truck. And, by ordering all our materials palletized for fork truck handling, we make similar savings all along the line—in yard storage, in our warehouses, and in loading our own trucks for local delivery. ***By high stacking, we have more than tripled our warehouse capacity.***"

The Baker "FGF" YARDLOADER is a rugged, compact, pneumatic-tired gas fork truck designed for heavy duty. Model illustrated has 4000 lb. capacity, and is equipped with a truck-loading mast providing 110 inch lift from 71 inch overall height. It is extremely maneuverable—with only 48-inch wheelbase and practically no overhang, it has a turning radius of only 79 inches!



OLD METHOD

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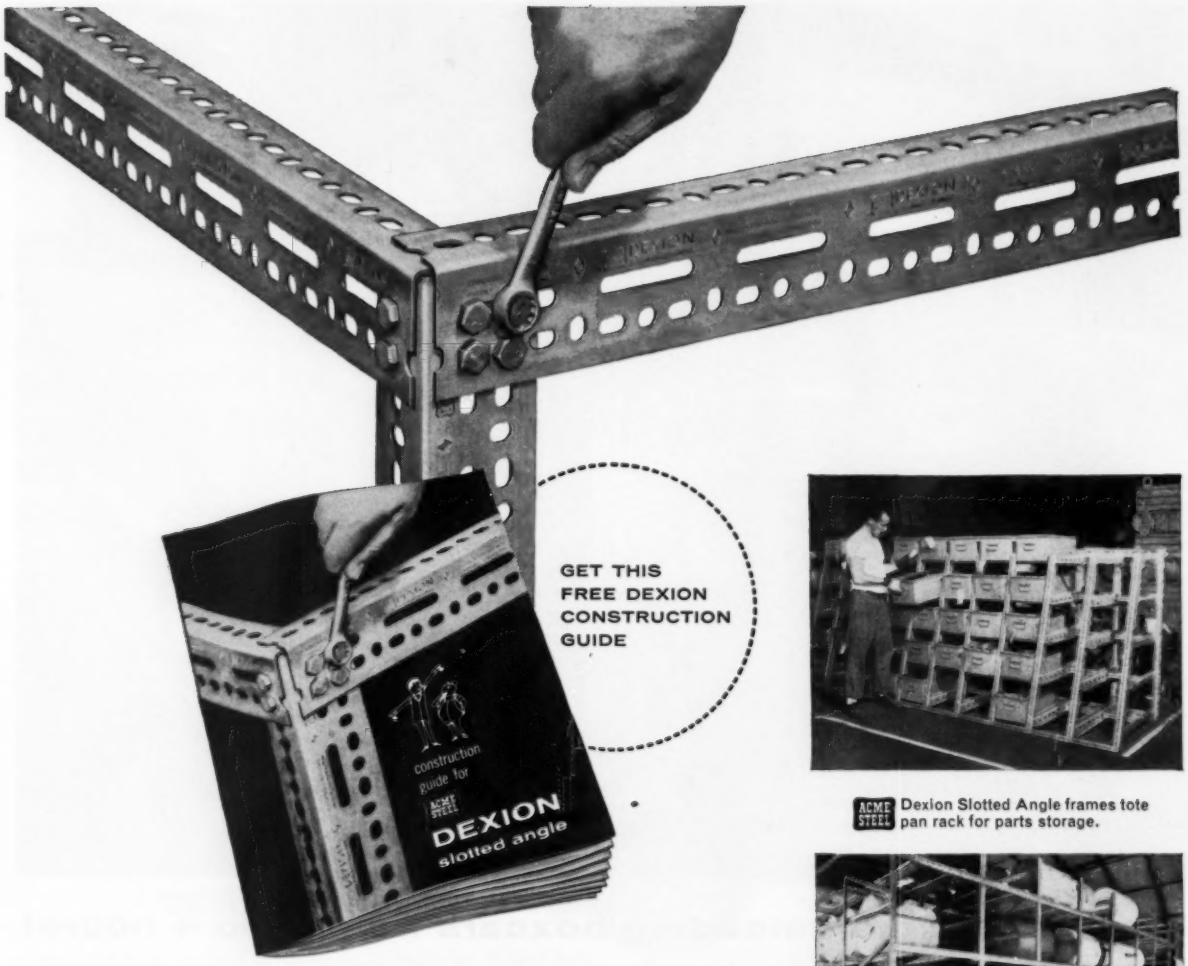
Baker
industrial trucks

THE BAKER-RAULANG COMPANY
1216 WEST 80th STREET • CLEVELAND 2, OHIO
A Subsidiary of Otis Elevator Company

Otis

7G8

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Cut your costs with ACME STEEL Dexion Slotted Angle

the Idea framing material for all installations

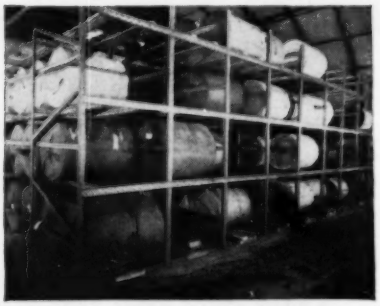
Frame whatever plant equipment you may need, including electrical installations, more easily, quickly and at reduced costs with Acme Steel Dexion Slotted Angle.

Dexion Slotted Angle measures, cuts and bolts together at the job site. Light and compact, Dexion Slotted Angle is packaged in 10-length units, complete with nuts and bolts.

For any kind of framing, Dexion Slotted Angle slot and hole patterns always match up, a special feature whether for custom building storage racks or hanging and installing electrical equipment. And strength factors allow stable, safe frameworks for holding hundreds of pounds. A wrench and the portable Dexion Cutter are the only tools needed. No drilling or welding . . . merely cut and bolt the pieces together to your exact specifications.

Cold-rolled, galvanized steel Dexion Slotted Angle is available in two sizes—standard and heavy duty. And it is completely reusable. A free Idea copy of the "Dexion Construction Guide" is yours for the asking. Just write Dept. DBD-87, Acme Steel Company, Chicago 27, Illinois.

ACME STEEL Dexion Slotted Angle frames tote pan rack for parts storage.



ACME STEEL Heavy-duty Dexion Slotted Angle racks weighty paper rolls.



ACME STEEL Dexion Slotted Angle used for stationary and mobile pallet racks.

ACME STEEL **DEXION SLOTTED ANGLE**

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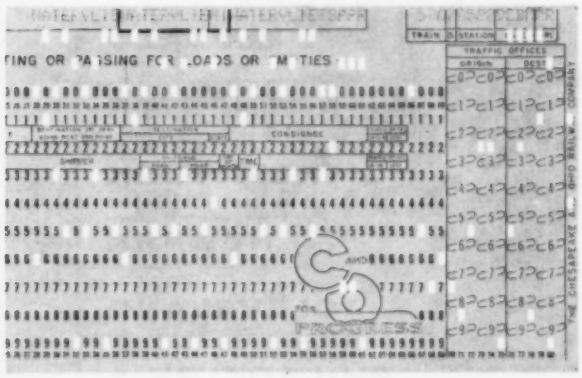
CLIC for short

Chesapeake and Ohio has just installed the first car reporting system to cover an entire railroad and operated entirely by Teletype. This is the new Car Location Information Center – CLIC for short.

HOW CLIC OPERATES

As soon as a freight car leaves a classification yard or passes a major junction point on the C&O, complete information is teletyped to the Center. This report gives the car number, type of car, commodity, shipper, consignee, routing, train number, reporting station, month, day, hour, and any special instructions. If a car is delayed for any reason, that is reported too. From CLIC, these reports are promptly teletyped to the C&O traffic office serving the consignee and also to the traffic office in whose territory the shipment originated. By means of CLIC's 30,000 miles of circuits connecting 238 teletype receiving and sending stations, each of C&O's 56 freight traffic offices automatically receives complete information on all cars originating or terminating in its territory.

So whether you shipped a car, or are awaiting it, your C&O traffic office has up-to-the-minute information for you.



TRY CHESSIE'S CLIC, NOW!

Route a car via C&O. Ask the C&O Traffic Office to keep you informed of its location. This simple test will show how useful CLIC can be to you.

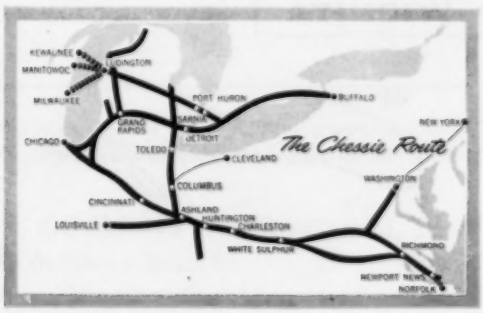
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Would you like a copy of a new booklet describing CLIC? Just write:

J. E. Doyle, V.P. – *Merchandise Traffic*
3200 Terminal Tower, Cleveland 1, Ohio

Another reason why it pays to ship via

Chesapeake and Ohio Railway



SPECTOR MID-STATES

daily dependable DIRECT SERVICE

between the important industrial and commercial markets of America



Customerized

ROUTING AND RATING INFORMATION SERVICE
AT THE TERMINAL CITIES SHOWN ABOVE
FREE PICKUP and DELIVERY

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General Offices: 3100 South Wolcott Avenue, Chicago 8, Illinois



Two more top payloads of H. W. Madison food products take to the road by White 3000. Frank A. Kraus, traffic manager, checks shipments as they leave the modern Medina, Ohio plant.

"Big Payload" WHITES

Cut the Corners on Truck Costs

The White 3000's in the "Dolly Madison" fleet are just like so many other modern White Trucks operating across the country.

They keep rolling up the miles—dependable, economical, and efficient.

The first White 3000 in the Madison fleet now has nearly 600,000 miles and still is in regular, low-cost service. These modern Whites allow Madison 15% additional payload and more flexibility handling heavy, concentrated loads.

It's the same story everywhere. Quality White Trucks do more work—at lower cost—because they are engineered right to the work they do.

Find out how White can boost payloads and earning power for you.

White 3000

White builds the industry's most complete line of highway gasoline and diesel tractors for maximum earning power under any state highway law pattern

THE WHITE MOTOR COMPANY • Cleveland 1, Ohio

Autocar Division • Exton, Pa.

For More Than 55 Years The Greatest Name In Trucks

Circle No. 4 on Card, Facing Page 83, for more information

United Air Lines will pick up and deliver your shipment . . . hold space for it, too!





Want your shipment on a particular United Air Lines flight? Just say the words—"Reserved Air Freight." This guarantees the space you need on *any* flight you want. United will provide pickup and delivery service if you wish. For further assurance, United's system-wide Customer Service will monitor your shipment all the way to its destination.

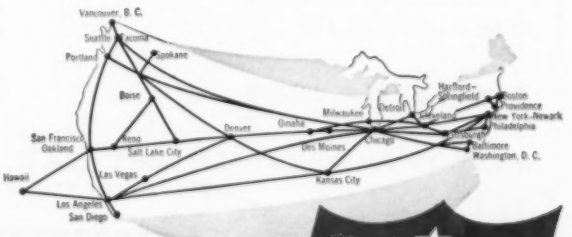
There's assurance, too, in United's frequent, high-speed Air Freight schedules, including same-day DC-7 Mainliners and 30,000-lb.-capacity DC-6A Cargoliners coast to coast. All this is part of the new standard in Air Freight set by United. Specify UAL† on your next airbill, then notice the difference.

†UAL is a service mark used and owned by United Air Lines.

Examples of United's low Air Freight rates

	per 100 pounds*
CHICAGO to CLEVELAND	$4.78
NEW YORK to DETROIT	$5.90
DENVER to OMAHA	$6.42
SEATTLE to LOS ANGELES	$9.80
PHILADELPHIA to PORTLAND	$24.15
SAN FRANCISCO to BOSTON	$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.





Door-to-door service

SHIP FAST . . . SHIP SURE . . . SHIP EASY

UNITED AIR LINES

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.



CHUTING THE NEWS

SSTC 5th Annual Meeting

The fifth annual meeting of the National Small Shipments Traffic Conference will be held at the Biltmore Hotel, New York City, September 24-26.

The Executive Committee will meet on Tuesday, September 24, with general membership meetings filling the two remaining days. Wednesday evening the Conference will hold a reception and dinner.

Richard L. Whitty, transportation director, Belknap Hardware and Manufacturing Company, chairman, will preside at the Executive Committee Meeting. Walter K. Cabot, general traffic manager, Johnson and Johnson, will be in charge of the membership meetings.

—DA—

Change of Minimum Opposed

Ben F. Williams, traffic manager, Norwich Pharmacal Co., representing the National Small Shipments Traffic Conference Inc., spoke in opposition to a proposed revision of minimum charge before the General Committee of the Eastern Central Motor Carriers Association.

The proposal would establish minimum per shipment charges by providing an additional scale of minimum charges reflecting 120 per cent of present minimum charges for application when shipper fails to release the value of LTL or any quantity shipments in connection with commodities provided with released valuation in the National Motor Freight Classification.

Packaging and Handling Competition Rules Changed To Permit Broader Participation, Behme Announces

The National Championship Industrial Packaging and Materials Handling Competition will be entirely revamped this year, it was revealed by N. F. Behme, chairman of the ATA National Classification Board. Behme is chairman of the Competition Committee.

In announcing the rules, Behme said, "The Competition has been completely revamped from changes in the entry groupings to the final award presentations ceremonies. However, the competition will still remain essentially a packaging and materials handling competition with the changes in regulations designed to permit broader participation."

The competition will climax the National Industrial Packaging and Handling Exposition of 1957 in Atlantic City's Convention Hall, October 28 through 31.

Complete details of the competition with entry forms are available from the headquarters of the Society of Industrial Packaging and Materials Handling Engineers, 111 W. Jackson Blvd., Chicago 4.

—DA—

Judges for the 1957 Fibre Box Competition, to be held in Washington, D. C., on October 17-18 were named recently. They are E. H. Balkema, Colgate - Palmolive Co.; N. F. Behme, Jr., National Classification Board; C. A. Lewis, Department of Commerce; George Hamilton, Boxboard Containers; W. G. Hetzel, National Container Committee; and R. A. O'Reilly, Jr., General Motors Corp.

—DA—

Period of Adjustment Seen By Speaker at TTMA Meeting

The accepted indicators of business trends point toward a period of adjustment between the various major factors in the national picture. This probably will not signal a depression but rather a "catching up" of one segment with another.

This was the description of the business outlook presented by Ewan Clague, commissioner, U. S. Bureau of Labor Statistics, at the annual summer meeting of the Truck-Trailer Manufacturers Association, Inc.

The meeting was held at Hot Springs, Va., July 17.

Transportation Conference

The Fourth Transportation Conference and Seminar of the American Society of Traffic and Transportation will be held at Georgia College of Business Administration, Atlanta, September 12-13.

This is part of Atlanta's Transportation Week which will also include the Annual Meeting of the Southern Traffic League, and a regular meeting of the Shippers Advisory Board.

(*Please Turn Page*)

Chuting the News . . .

(Continued from Preceding Page)

Industry-Government Project to Establish Rating Method for Refrigerated Trailers

A number system to express the rate of heat transfer through refrigerated structures including truck and trailer bodies will become a reality through a joint industry-government project announced recently.

A contract has been signed between the Truck-Trailer Manufacturers Association, Inc., and the Department of Agriculture extending industry financial support to the project. A second contract, between USDA and the National Bureau of Standards, initiates the research project.

A. E. Williams, executive vice president-engineering and production, Fruehauf Trailer Company, describes this as the most important research TTMA has ever been called upon to undertake.

The method is already developed in principle—all that remains is complete blueprinting and some further testing under laboratory and highway conditions.

Once the method is fully developed and tested, manufacturers of refrigerated trailers will furnish purchasers certified Btu ratings based on test results.

The Trailer Rating Method Project will be guided by a steering committee to be organized by Paul R. Achenbach, chief, Air Conditioning, Heating and Refrigeration Section, National Bureau of Standards.

—DA—

AMA Packaging Clinics to Study Cost Cutting in Industrial Use

"Cost Reduction in an Industrial Packaging Operation" is the general theme for the American Management Association Packaging Clinic to be held August 12-16 at Colgate University, Hamilton, N. Y.

Following practical discussions by industry leaders on what is being done today, smaller groups will meet for round table discussion.

Topics will cover "Eliminating the Package," "Controlling the Vendor's Packages," "Standardizing," and "A Packaging Plan."

—DA—

Legislative Line-up

Following is a brief summary of legislative items pending in Washington. The status reported is as of July 15.

FOREIGN FREIGHT FORWARDERS—House Merchant Marine Committee does not plan action on HR 479, requiring licensing of foreign freight forwarders by the Federal Maritime Board.

HIGHWAY BUILDING — Senate Public Works subcommittee, under Chairman Gore, is considering a call for testimony by Federal Highway Administrator Tallamy. Indiana right-of-way issue remains unsettled.

MINIMUM WAGES — Minimum wage law extension bill, S 1853, awaits action by the Senate Labor Committee. House Labor Committee, after completing Washington hearings on minimum wage matters, now plans field hearings.

POSTAL RATES—House Rules Committee has pending a request affecting a floor vote on S 5836, designed to raise first through third class postal rates.

SOCIAL SECURITY—A new bill, HR 8309, is offered to permit combined reporting of social security and income tax data. No hearings are set on this or a similar measure, HR 239.

TERMINAL TRAFFIC — Further hearings may be held on HR 2229 by House Merchant Marine Committee. This measure would direct more government freight through commercial marine terminals.

TRANSPORT POLICY—All quiet for this session are the transport policy revision bills, HR 5521 and S 1457.

TRANSPORTATION OF EXPLOSIVES—S 1491, to revise the Transportation of Explosives Act, is not listed for early treatment by the House Commerce Committee.

Breakfast Take-Off



Start of United Air Lines' DC-6A Cargoliner service recently in Boston was preceded by a novel send-off breakfast aboard one of the giant all-cargo planes. Guests included area traffic managers and shippers. Host was A. E. Fairbanks (fourth from left), United's New England district manager

AAR Sees Better Service, New Efficiency Key to Competition

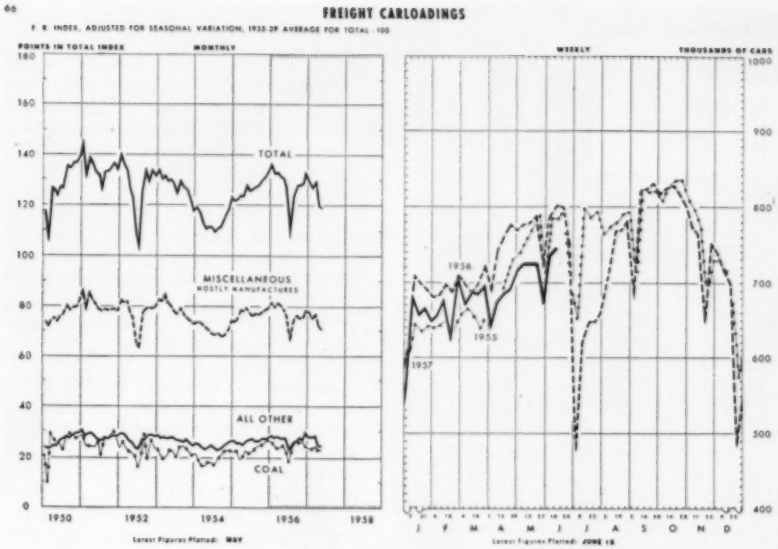
Under today's competitive conditions, the nation's railroads must improve service and develop operating efficiencies wherever practical, Richard G. May said recently.

May, vice president in charge of the Operations and Maintenance Department of the Association of American Railroads, addressed a joint session of the Mechanical Division and the Electrical Section of the AAR in Chicago. He said these measures were doubly important in view of the railroads' low rate of return on investment.

Robert H. Smith, president of the Norfolk and Western Railway, spoke before the Mechanical Division. He said the railroads by 1975 must have better rolling stock that will travel farther daily than at present. To handle increased traffic, he continued, the carriers must either increase the number of freight cars or else utilize their present fleet more efficiently.

—DA—

Gene T. West has been named managing director of the Munitions Carriers Conference, Inc.



Pallet Manufacturers Adopt Standard Test Methods for Evaluating Pallets, Helping User

The National Wooden Pallet Manufacturers Association, during its recent Annual Meeting, approved test methods for evaluating pallets.

Purposes of these tests are to help the user determine if a given pallet will do the job, and to establish procedures to determine the relative effectiveness of pallets of various materials.

The 11th Annual Meeting was held during a five-day cruise on the *S.S. Queen of Bermuda.*

A progress report on NWPMA's 1957 expanded Trade Promotion Program was given by Executive Vice President William H. Sardo, Jr. It was reported that a pamphlet on the care and maintenance of wooden pallets will be issued about September 30.

—DA—

An express rate increase, authorized by the ICC on June 17, became effective July 15. The approved increase was 15 per cent on lcl express shipments in the Eastern Territory, except on fresh fish and seafood, flowers, and watercress.

—DA—

ATA Delays Start of Credit Plan

After an eight-month study of the proposal, the trucking industry decided recently to defer the establishment of an industry-owned credit institution to finance purchases of truck equipment.

Walter F. Carey, Birmingham, Mich., chairman of a Special Industry Credit Committee, reported to the Executive Committee of American Trucking Associations, Inc., that capital for the project could not currently be assembled at "reasonable cost." The committee then voted the deferment.

Amendment Permits Carriers To Base Rates on Direct Routes

President Eisenhower, on July 11, signed an amendment to the Interstate Commerce Act which allows carriers to establish rates over circuitous routes so as to meet competition of the same type over direct routes.

The carrier can make these rate adjustments without first filing a request with the ICC.

The bill, drafted by the ICC, amends Section 4 covering railroads and other carriers subject to Part I of the act, and Part III, which covers water carriers.

News Briefs

James M. Symes, of the Pennsylvania Railroad, speaking for 34 eastern rail carriers, proposed a self-supporting Federal agency to lease $2-billion worth of rolling stock to the railroads. Symes presented the plan to the House Commerce Committee.

There were 1154 vessels of 1000 gross tons or more in the active oceangoing U.S. merchant fleet on July 1, the **Maritime Administration** reports. This was six less than the number for June 1.

The **American Retail Federation** has requested a public hearing on HR 4391 which would amend the Interstate Commerce Act to require freight forwarders to obtain certificates of public convenience and necessity. The request was made to the **House Committee on Interstate and Foreign Commerce.**

Pan American World Airways, during the two-week period ending July 6, broke all its previous records for eastbound trans-Atlantic cargo. Total carried was 169,840 lb.

Pan-Atlantic Steamship Corp. will resume its trailership service between New York, Miami, Houston, and Tampa. Ten converted C-2s, each equipped with two cranes of 30-ton capacity, will be assigned to the service eventually.

The addition of almost 5-million tons last year has brought the world merchant fleet to a total of 105,200,-361 gross tons, according to **Lloyd's Register of Shipping.**

Tonnage of intercity general freight carried by truck during April was up 3.1 per cent over the figure for April a year ago, the **American Trucking Associations, Inc.,** reports.

American Box Corp., of San Francisco, has joined the **Fibre Box Assn.**

The **State of New York, New York City, The Port of New York Authority,** and major railroads serving the port have asked the ICC to equalize the export-import rail rates between New York and the Midwest with those of other North Atlantic ports.

The world's longest section of centralized traffic control, 331 miles, has been completed by the **Milwaukee Road.** One dispatcher now controls trains between Green Island and Council Bluffs, Iowa.

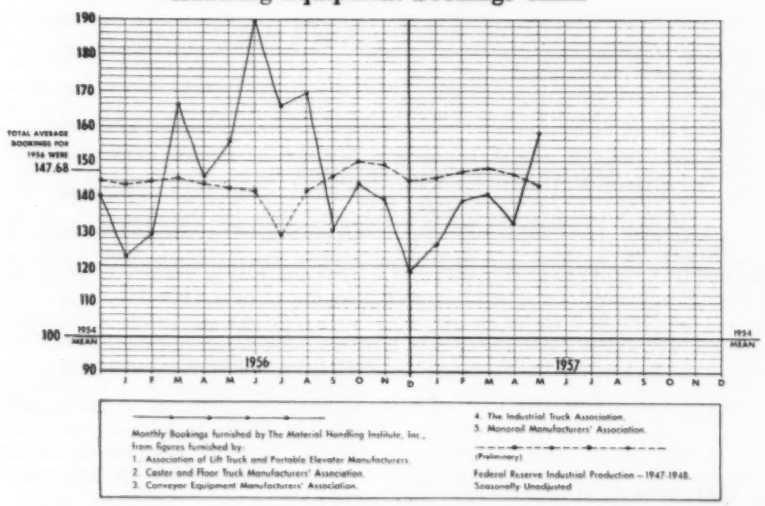
Paperboard production for the first six months of 1957 was five per cent greater than during the last half of 1956, according to the **National Paperboard Assn.**

—DA—

The Folding Paper Box Association will conduct a survey to determine how better packaging can reduce operating costs in department stores.

(Please Turn Page)

Handling Equipment Bookings Climb



Dollar volume of orders received by handling equipment manufacturers during May was 19 per cent better than April. This rise is reported in the monthly bookings index of The Material Handling Institute. Using 1954 orders received as a statistical base of 100, the May bookings are translated as 157.95. The average dollar volume of monthly orders received thus far this year is 139.40, as contrasted with 100, the average for 1954

Chuting the News . . .

(Continued from Preceding Page)

U. S. Chamber of Commerce Appoints Fourteen Men To Transportation, Communication Committee

Appointment of 14 new members to the Transportation and Communication Committee of the U. S. Chamber of Commerce was announced recently by Chamber President Philip M. Talbott. All other members were re-appointed.

Included in the new appointments are: Walter K. Cabot, general traffic manager, Johnson and Johnson; Charles W. L. Foreman, vice president, United Parcel Service; David L. Francis, president, Princess Elkhorn Coal Company; William Barclay Harding, Smith, Barney and Company; Hunter Holding, second vice president, Equitable Life Assurance Society of U. S.; Curtis M. Hutchins, chairman of the board, Bangor and Aroostook Railroad Company; D. B. Jenks, president, Chicago, Rock Island and Pacific Railroad.

Also D. Philip Locklin, professor of economics and transportation, University of Illinois; William T. McArthur, transportation vice president, Pillsbury Mills, Inc.; S. L. Miller, professor of transportation, University of Pittsburgh; Lowe Siddons, general traffic manager, Holly Sugar Corp.; Robert F. Six, president, Continental Air Lines, Inc.; W. J. Sullivan, director of traffic, Barrett Division, Allied Chemical and Dye Corp.; and S. B. Turman, president, Lykes Brothers Steamship Co., Inc.

—DA—

Road Machinery Group's Traffic Unit Takes New Name

Road Machinery Traffic League is the new name of the 21-year-old Traffic Council of the Grading and Road Making Implement Industry. The name change, along with changes in the constitution and by-laws, were adopted at a recent reorganization meeting.

Club Briefs

C. H. Groninger, freight traffic manager of the Baltimore and Ohio, is the new president of the **Traffic Club of Chicago.** Vice presidents are: Walter N. Saaby, director of traffic, Victor Chemical Co.; Carl M. Gautwick, general freight agent, Northern Pacific Railway; Eugene Landis, director of transportation, International Minerals and Chemicals Corp. Harry O. Mathews, general manager of transportation, Armour and Co., is secretary and R. T. DeGroote, general western freight agent, Luckenback Steamship Co., is treasurer.

Arthur F. Downey, export manager, Glidden Co., Ltd., is the new president of the **Canadian Industrial Traffic League.** Harry J. Ringrose, traffic manager of Hiram Walker and Sons, Ltd., at Walkerville, and Fred Ainsworth, traffic manager of Husky Oil Refining Co., Alberta, are first and second vice-presidents.

The **Metropolitan Traffic Assn. of New York, Inc.,** held a family outing recently at Parsippany, N. J.

Los Angeles Transportation Club, at its July meeting, heard a speech on "Helicopters for Every-Day Transportation." Gilbert Magill, president of Rotor-Craft Corp., was the speaker.

The Manufacturing Confectioners' Traffic Conference elected E. M. Carey, traffic manager of E. J. Brach and Sons, chairman. Other officers: M. M. Solay, traffic manager, Mason Candies Co., vice-chairman; P. A. Snyder, traffic manager, Cracker Jack Co., secretary-treasurer; J. Allen Jobes, Jr., traffic manager, Thomas D. Richardson Co., assistant secretary-treasurer.

The Traffic Club of New York recently held a testimonial luncheon in honor of Harry H. Meyer, who retired from active service with the Chicago and Illinois Midland Railway.

A scholarship program to interest young men in the traffic and transportation field has been announced by the **Worcester Traffic Assn.,** of Worcester, Mass.

Julius J. Puchy, of Western Electrical Instrument Co., was elected president of the **Eastern Division of the Soc. of Industrial Packaging and Materials Handling Engineers.**

Niagara Frontier Industrial Traffic League, Buffalo, N. Y., recently elected E. F. Hoke, of the Wildroot Co., Inc., president. H. D. Simonton, Penn-Dixie Cement Corp., is first vice president; J. H. Wright, Spencer Kellogg and Sons, Inc., second vice president; George P. Zier, secretary; H. A. Harrington, Carborundum Co., treasurer; and J. E. Bondanza, J. W. Clement Co., general secretary.

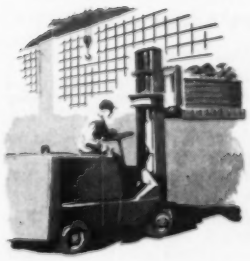
The newly chartered **Pittsburgh Chapter of the Soc. of Industrial Packaging and Materials Handling Engineers** held its first election recently. Francis C. Aland, of Pittsburgh Plate Glass Co., is president.



Being interviewed is H. A. Fuggiti, Acting Senior Development Engineer

"Here's where the heavy slugs of power come from"

At the Exide Laboratories—**Reporter:** Just exactly what part of the battery is that, Mr. Fuggiti?



Fuggiti: This is the Exide-Ironclad positive plate. And in any battery, power reserve is governed by positive plate area.

Reporter: Then do you mean that Exide-Ironclad Batteries have *more* positive plate area?

Fuggiti: Exactly. You can see that here. The cylindrical power tubes are arranged in a row. So the semicircular sides give an effective plate area one-third more than the plate size.

Reporter: How does that increase power reserve?

Fuggiti: Because there's a bigger working surface of battery plate exposed to the electrolyte. Power response is faster.

Reporter: What does this mean in battery performance?

Fuggiti: It means the battery can provide power to spare for peak power loads as well as a dependable source for continuous loads.

Reporter: Obviously this is an important feature of the Exide-Ironclad Batteries.

Fuggiti: Yes it is, but it's just one of many engineering details that contribute to their long life and high capacity.

Note to battery users: Whenever you order heavy duty batteries or the equipment that requires them, be sure to specify Exide-Ironclad. For detailed bulletin, write Exide Industrial Division, The Electric Storage Battery Co., Philadelphia 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY Exide®

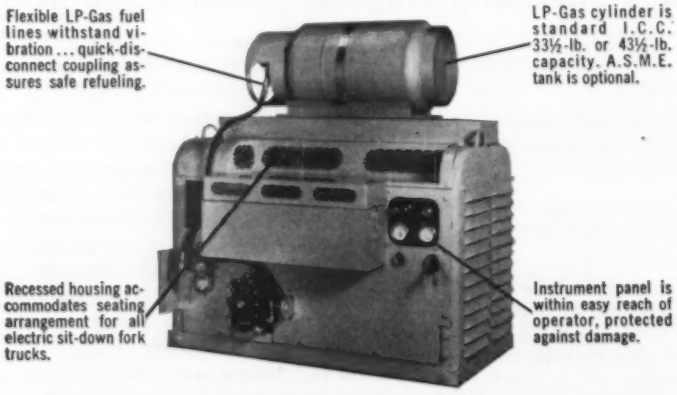
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Ready-Power LPG-Electric Power Unit for Sit-Down Trucks

MODEL HA-3 FOR 4000-6000 LB. FORK TRUCKS

Now, get the advantages of full-time LPG-electric power for *any* electric, sit-down fork truck, regardless of make or model. Compact Ready-Power model HA-3 accommodates all seating arrangements . . . assures remarkably low-cost operation . . . minimizes objectionable fume problems. Compact LP-Gas cylinder is mounted on top of engine-generator housing for quick, easy interchangeability. Hinged cover and side plate give easy access to engine accessories; removable end plate permits service of generator. LP-Gas components are listed by Underwriters' Laboratories and comply with Factory Mutual recommendations. Write today for full information.



READY-POWER

The READY-POWER Co., 3821 GRAND RIVER AVE., DETROIT 8, MICH.

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electic Power Units for Industrial Trucks

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Coming Events

Aug. 12-30—Short Course for Transportation Executives, Transportation Center, Northwestern University, Evanston, Ill.

Aug. 21-25—New York State Warehousemen's Association, Inc., Saranac Inn, Saranac, N. Y.

Aug. 30-Sept. 13—Ninth Pan American Railway Congress, Buenos Aires, Argentina, S. A.

Sept. 10—Southern Traffic League, Atlanta.

Sept. 11-13—North Atlantic Chapter, NARW, Annual Meeting, Otesago Hotel, Cooperstown, N. Y.

Sept. 12-13—American Society of Traffic and Transportation, Fourth Transportation Conference and Seminar, Georgia College of Business Administration, Atlanta.

Sept. 12-14—Southeastern Warehousemen and Movers Association, Atlanta, Ga.

Sept. 16-19—National Truck Leasing System, Annual Meeting, Palmer House, Chicago.

Sept. 17-18—Central Motor Freight Assn., Annual Convention, Conrad Hilton Hotel, Chicago.

Sept. 24-26—National Small Shipments Traffic Conference, Fifth Annual Meeting, Biltmore Hotel, New York.

Sept. 29-Oct. 2—Associated Traffic Clubs of America, Annual Meeting, Hotel Adolphus, Dallas, Tex.

Sept. 30-Oct. 1—The Material Handling Institute, Inc., Joint-Industry Fall Meeting, Greenbriar Hotel, White Sulfur Springs, W. Va.

Oct. 1-2—American Short Line Railroad Assn., Annual Meeting, New Orleans, La.

Oct. 1-3—Third Joint Military-Industry Packaging & Materials Handling Symposium, Fort Lee, Va.

Oct. 2-8—Regular Common Carrier Conference, ATA, Annual Meeting, Conrad Hilton Hotel, Chicago.

Oct. 6-11—American Trucking Assns., Annual Convention, Conrad Hilton Hotel, Chicago.

Oct. 8-10—Association of American Railroads, Chicago.

Oct. 14-16—Truck Body & Equipment Assn., Annual Meeting, Atlanta-Biltmore Hotel, Atlanta.

Oct. 17—New England Motor Carrier Freight Claim Conference, Boston, Mass.

Oct. 17-18—Fibre Box Assn., Fibre Box Competition, Washington, D. C.

Oct. 19-20—Delta Nu Alpha Transportation Fraternity, Inc., Annual Meeting, Atlantic City, N. J.

Oct. 25-27—Missouri Warehousemen's Association, Inc., 34th Annual Meeting, Hotel Muehlebach, Kansas City, Mo.

Shippers Advisory Boards

Sept. 11-12—Ohio Valley Shippers Advisory Board, Louisville, Ky.

Sept. 11-12—Allegheny Regional Advisory Board, Canton, Ohio.

Sept. 11-12—Southeast Shippers Advisory Board, Atlanta, Ga.

Sept. 11-13—New England Shippers Advisory Board, Pike, N. H.

Sept. 12-13—Pacific Coast Shippers Advisory Board, Las Vegas, Nev.

Shipper-Motor Carrier Conference

Sept. 24-25 — Middlewest Shipper - Motor Carrier Conference, Regular Meeting, Radisson Hotel, Minneapolis, Minn.

MEN
IN THE NEWS

Traffic

Norman J. Rudell—named manager of the newly created Traffic Department of Hewitt-Robins, Inc., Stamford, Conn.

Joseph C. Gruber—promoted to traffic manager of the Jack Division, Duff-Norton Co., Pittsburgh.

Joseph N. Zeyen—appointed general traffic manager, Simmons Co., Kenosha, Wis. **Herb. W. Klabunde**—named assistant to the general traffic manager.

Howard Finkbeiner—appointed assistant traffic manager, Kellogg Co. of Canada, Ltd., London, Ont.

James T. Davis, John C. Howard, Paul A. Fryer—promoted to assistant general traffic managers, Bethlehem Steel Co., Bethlehem, Pa.

Edward Gusky—named director of traffic, Schenley Industries, Inc., New York.

William R. Burks—appointed director of the Traffic Department, Chemstrand Corp., New York.

John C. Cottee—named assistant general traffic manager, Glidden Co., Cleveland.

John F. Maloney — new general traffic manager, Columbia - Geneva Steel, U. S. Steel Corp.

Arthur Edelberg—appointed general traffic manager, Shelton Manufacturing Co., Newark, N. J.

Frank Kaprive — appointed manager of the Traffic Department, Hagan Chemical & Controls, Inc.

Robert L. Ray — appointed traffic manager, Westinghouse Electric Corp., Pittsburgh.

Transportation—Air

Kenneth T. MacKenzie—appointed director of newly organized Aircraft Sales Division, Slick Airways, Dallas, Texas.

Steve Kabala—named supervisor of cargo service, Delta Air Lines, Atlanta, Ga.

—Highway

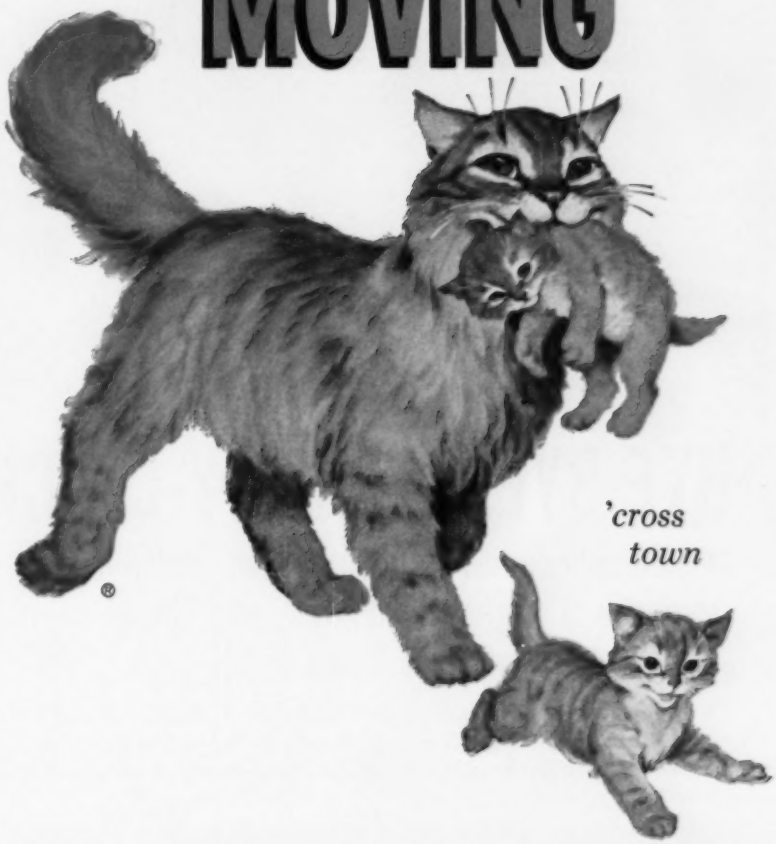
J. W. Keener—elected president, director, and member of the Executive Committee, B. F. Goodrich Co., Akron, Ohio.

John W. Ferguson — named vice president, Spector Mid-States, Chicago, Ill. **Oscar Horvitz**—named treasurer.

George J. Kolowich — re-elected president, Denver-Chicago Trucking Co., Denver, Colo. All other officers

(*Please Turn to Page* 128)

for DEPENDABLE MOVING

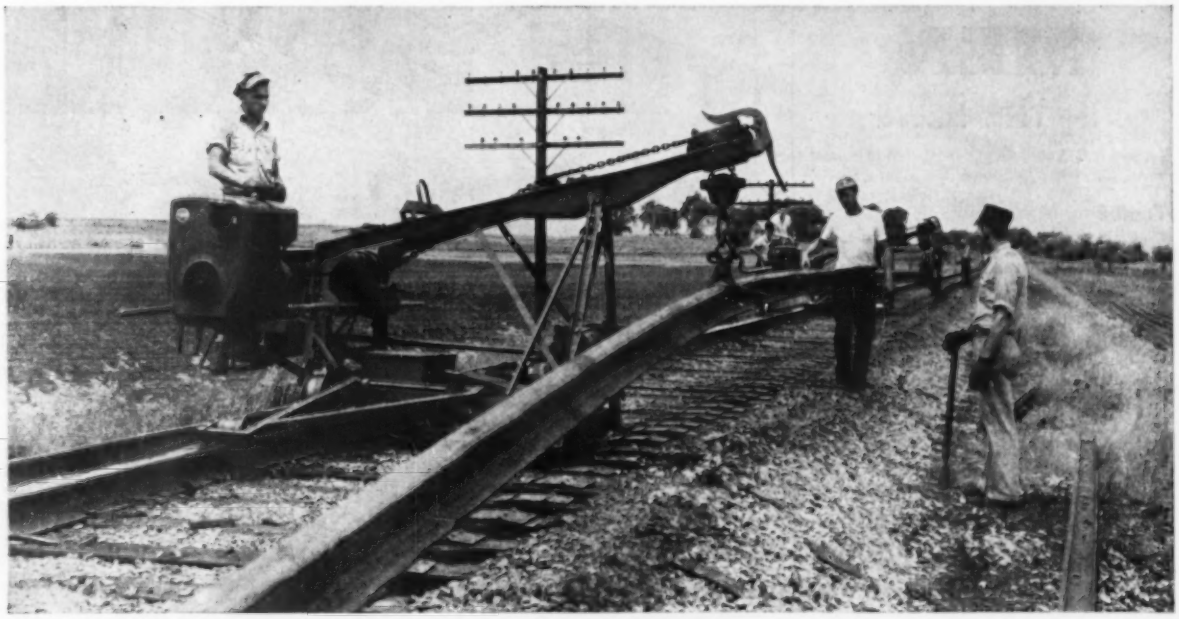


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... he's the No.1 Specialist

Ask your Allied Mover for a copy of "Before You Move." See yellow pages of your phone book, or write Allied Van Lines, Inc., Broadview, Illinois.



ALLIED VAN LINES • WORLD'S LARGEST LONG-DISTANCE MOVERS

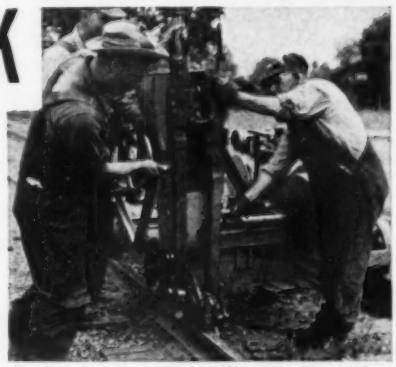


BYE BYE, CLICKETY-CLACK

Complete continuous rail program is concrete proof of Monon's determination to bring shippers the world's most Efficient, Dependable, Prompt Service and Reduced Costs!

Continuous rail, welded together, laid in lengths of almost a quarter of a mile, is silencing the old familiar "clickety-clack" of wheel on joint. This new silence of the rails symbolizes a modern era of streamlined efficiency in railroading.

Monon is even now putting into effect a complete continuous rail program—and Monon methods, illustrated here, have been widely studied by railroad men from all over the country. This is merely one more concrete example of the modern Monon's policy of using the latest scientific discoveries in maintenance, communications and operations to bring you, the shipper, the most dependable, efficient speed and service. Now, as never before, it pays to ship on the Monon!



This modern spike puller goes to work, readying the old rail for removal.



The machine that beats John Henry! Spike driver puts in new spike in seconds.



Steel rails, each close to a quarter mile long, go out the right-of way.



THE HOOSIER LINE

For shipments to, through, or from Indiana...

NOW, AS NEVER BEFORE, IT PAYS TO SHIP

MONON RAILROAD



THE
all-new
CLARKLIFT
20

No servicing costs on a clutch that isn't there

Here's the only truck of its kind with no-clutch driving *as standard equipment*. With this *Clarklift*, you eliminate expensive clutch replacement, repair and adjustment. Moreover, there's new operating ease . . . more efficiency from your drivers.

Engineered into the new *Clarklift* is a new transmission that delivers smooth constant power at the flick of a finger. The transmission for Clark's *Hydratork Drive* is designed for the stop-and-start operations of a lift truck. Operation is faster. There's less driver fatigue. Wear and tear on both truck and load is reduced.

You'll want to see this new *Clarklift* and its many dollar-saving benefits. Better still, ask for a demonstration on your property. No obligation. Write us or call your local Clark dealer—he's listed in the Yellow Pages.

Industrial Truck Division
Clark Equipment Company
Battle Creek, Michigan

CLARK® EQUIPMENT

Clarklift and Hydratork Drive are trademarks of

Only New HALLOWELL *ERECTOMATIC*® Steel Shelving

has a time-saving, positive built-in lock—plus these features:



FAST ASSEMBLY. Just position the shelf supports, insert the shelf, press the locks. Straight-in, straight-out shelf change. No tilting. No dismantling. No interference with any other shelf.

New Hallowell ERECTOMATIC® steel shelving goes up fast, can be rearranged in seconds. It's the unique built-in locking device* that cuts assembly time, speeds repositioning of shelves. Here's how easy it is! To position a shelf—slide it into place on the shelf supports, press the locks, and the job is done. To reposition a shelf—release the locks, pull the shelf straight out, slide it straight in on the supports at its new location, and press the locks. It takes only seconds to complete the move.

New Hallowell ERECTOMATIC steel shelving is available in all types, too. Open, closed, bin units, ledge units, counter units, and cabinets are made of prime steel, phosphate coated, and finished in baked-on enamel. Standard is SPS green, other colors are available.

Investigate new Hallowell ERECTOMATIC before ordering shelving. You'll find it stocked by leading industrial distributors and shop equipment dealers everywhere. Contact the one nearest you. Or write Hallowell Shop Equipment Division, STANDARD PRESSED STEEL CO., Jenkintown 77, Pa.

*Patent applied for



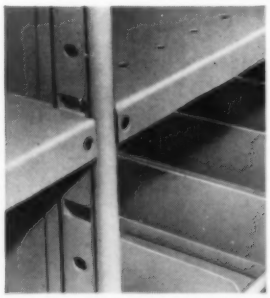
INDEPENDENT SHELF POSITIONING. Each shelf can be individually repositioned in seconds.



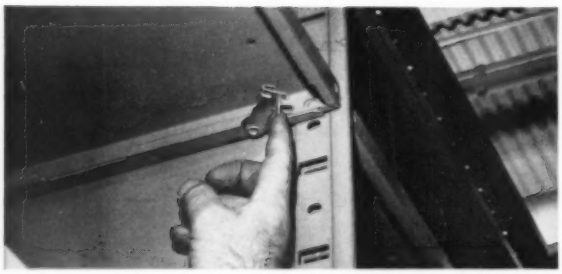
FULL USE OF SHELF AREA. No tees or angles, and beaded posts save valuable space.



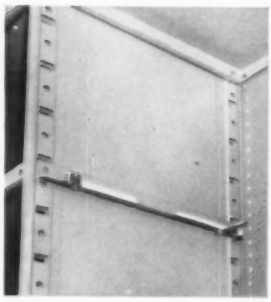
COMMON SIDE PANELS AND POSTS save material between adjacent units in rack. Back and side panels are one-piece.



BEADED POSTS AND FLANGED SHELVES prevent snagging of clothing or stored goods, protect workers.



QUICK SHELF CHANGE. Release the locks, remove the shelf and its supports, relocate, and press the locks.



FULL DEPTH SHELF SUPPORT. No buckling possible. Reinforcements can be added when they are required.



4 CLASSES OF SHELVES. Regular, medium, heavy and extra-heavy construction meets all load requirements.

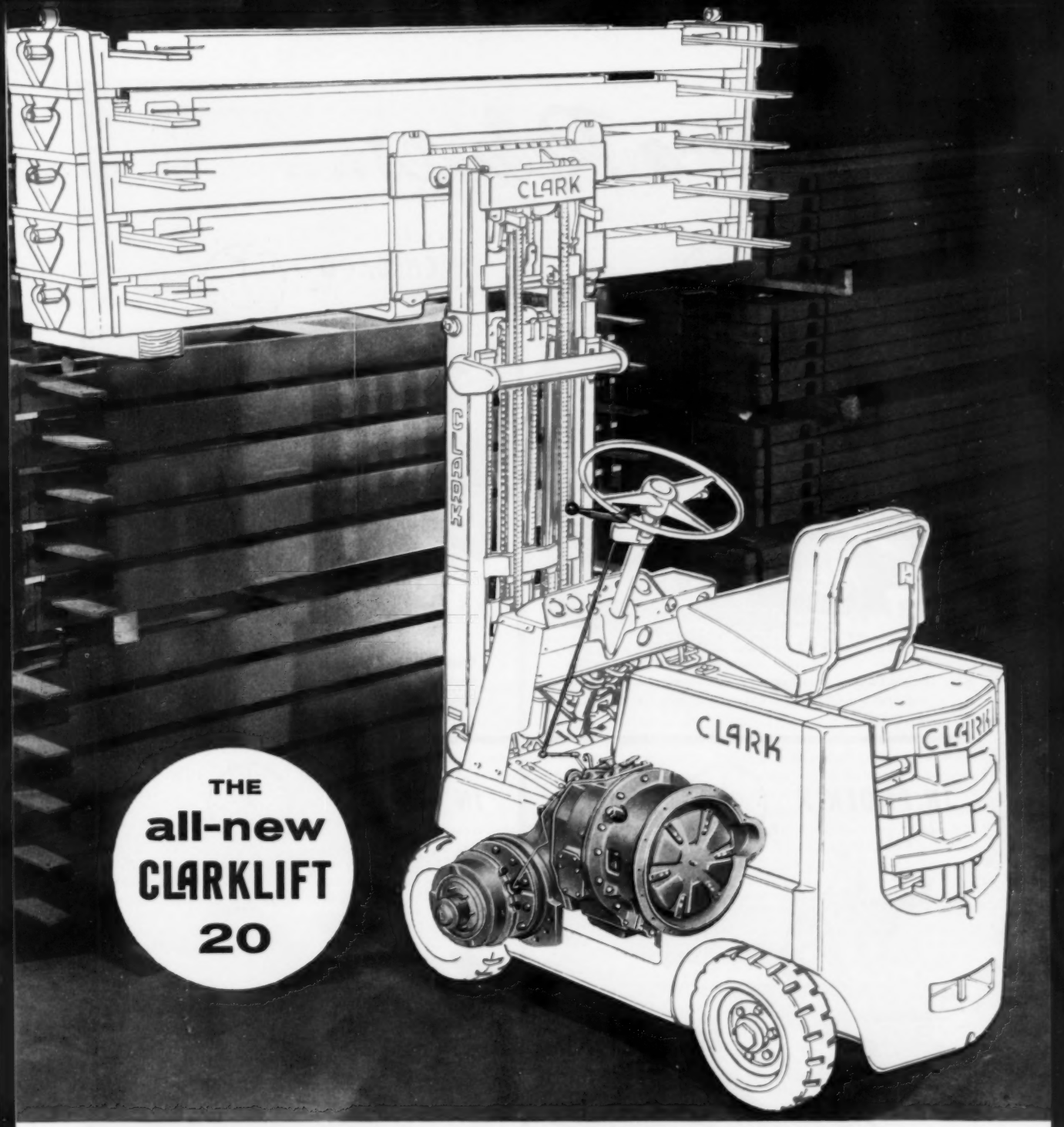
HALLOWELL® SHOP EQUIPMENT DIVISION

STANDARD PRESSED STEEL CO.

SPS

JENKINTOWN PENNSYLVANIA

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THE
all-new CLARKLIFT 20

We didn't forget the clutch pedal . . . but you can

With the all-new *Clarklift*, you will never be bothered with clutch operation and adjustments. A single lever on the steering column controls all forward and reverse movement. *Hydratork Drive* takes over from there.

An efficient torque converter smoothly matches engine power to load. Constant mesh transmission, employing finest quality helical gearing, applies smooth even power. The most sensitive inching available is built into the *Clarklift's* transmission. There's smooth positive inching at all engine speeds through a metering valve controlled by the brake pedal.

This drive has proven itself in thousands of units under all types of conditions. Your local Clark dealer can demonstrate this new *Clarklift*. Call him today—he's listed in the Yellow Pages.

Industrial Truck Division
Clark Equipment Company
Battle Creek 11, Michigan

CLARK® EQUIPMENT

Clarklift and Hydratork Drive are trademarks of

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America Relaxes....

IN NEW YORK



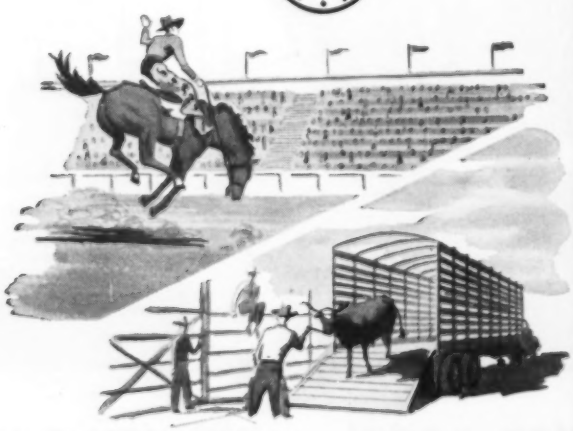
"It was a wonderful show"—and motor trucks helped make it so. Scenery, costumes, special lighting and sound equipment — all came by truck . . . *America Relaxes . . .*

IN CHICAGO



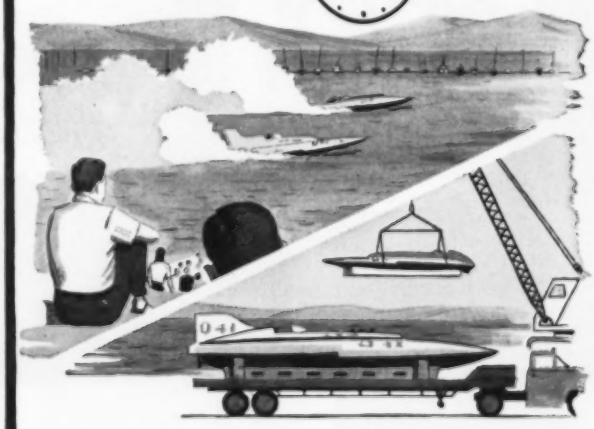
Motor trucks deliver *all* the meats, vegetables, fruits and condiments that go to make up taste-tempting delicacies for discriminating palates . . . *America Relaxes . . .*

IN PHOENIX



"Ride 'Em Cowboy!" is a familiar cry at the colorful Rodeo—and, thanks to trucks and huge livestock vans, there'll be broncos and steers 'a plenty . . . *America Relaxes . . .*

IN SEATTLE



Thousands thrill to the breathtaking speed of cup-winning power boats . . . transported on specially-designed truck-trailers from the four corners of the land . . . *America Relaxes . . .*

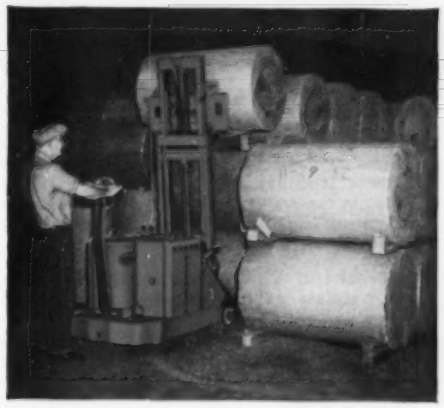
AMERICAN TRUCKING INDUSTRY

American Trucking Associations, Inc., Washington 6, D. C.

THE SHORTEST DISTANCE BETWEEN TWO POINTS IS A TRUCK LINE



CONCRETE PRODUCTS: This Automatic TRANSPORTER works indoors and out, day and night, in all kinds of weather for the Permacrete Products Corp.



TAGS & LABELS: Stacker model TRANSPORTER with special paper roll clamp handles and tiers 800-lb. paper rolls all day long for Central Tag Co.



VALVES & METERS: Marked improvement resulted in handling finished parts when this TRANSPORTER went to work for Rockwell Mfg. Co.

AUTOMATIC TRANSPORTATION CO.

Division of The Yale & Towne Manufacturing Company

Dept. M-7A, 115 W. 87th St., Chicago 20, Ill.

Automatic® TRANSPORTER

LEADS ITS FIELD IN COMPACTNESS... EFFICIENCY...ECONOMY...

Automatic TRANSPORTERS are available in many different types ...low and high lift platform or pallet...fork, straddle and retractable mast type stackers...tractors. These short, compact trucks perform all handling functions of standard rider type trucks, yet cost considerably less.

All models combine the flexibility, economy and dependability of electric power at its best with many exclusive operating advances. Capacities, 1,000 to 10,000 lbs. depending upon model. Complete line of attachments available.

But see for yourself the superiority of Automatic TRANSPORTERS. Figures below are for low lift pallet model comparison but other TRANSPORTERS show equally impressive advantages.

CAPACITY...		TRANSPORTER 4,000 LBS.	TRUCK A 4,000 LBS.	TRUCK B 4,000 LBS.	TRUCK C 4,000 LBS.	TRUCK D 4,000 LBS.
SHORTER	Overall length less load...	21½"	25¾"	26¾"	23¾"	24"
MANEUVERABLE	Maximum Overall width	29"	32"	32"	27"	32¼"
BETTER INCHING CONTROL	3 Speed Control	Yes	No	No	No	No
MAXIMUM HEAT PROTECTION	Class H Silicone insulated motor	Available	No	No	No	No
MORE EFFICIENT	Hand or foot lowering control	Both	Hand Only	Hand Only	Hand Only	Hand Only

MAIL COUPON for complete TRANSPORTER specifications and FREE "Cost-Cutter" Materials Handling booklet.

Automatic Transportation Company
Dept. M-7A, 115 West 87th St., Chicago 20, Ill.

Please mail me complete specifications for the Automatic TRANSPORTER Line and include FREE copy of your booklet, "Materials Handling COST-CUTTER.

Firm Name.....by.....

Address.....

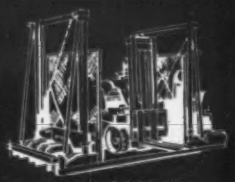
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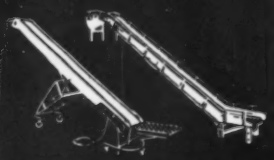
STRUCTO RACKING



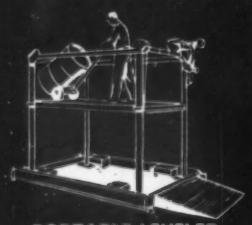
LIFTER
FOR 500 TO 1000 LBS.
For quick easy stacking of loads



"FOUR POSTER"
Electric Hydraulic lifter
for heavy loads



POWERED BELT CONVEYORS
PORTABLE CONVEYORS



PORTABLE LEVELER
For use in loading and unloading
when dock is not available

NOW! COLSON *Weight Saver* Magnesium Trucks



WEIGHS A MERE 16 POUNDS
(¼ as much as steel)

CARRIES 450 POUNDS

SPEEDS OPERATIONS

PREVENTS ACCIDENTS

Magnesium—lightest, strongest metal for its weight commercially available, is now used to make a strikingly superior hand truck. With "Weight Savers", your operators can transfer 450-pound loads with far less effort and in far greater safety.

Best news of all, these permanently attractive trucks outlast conventional models, even though they weigh as little as 16 pounds! They're rust-proof and never need painting; all parts are shapes, extrusions and stampings for maximum strength and durability. No castings or weldments to break.

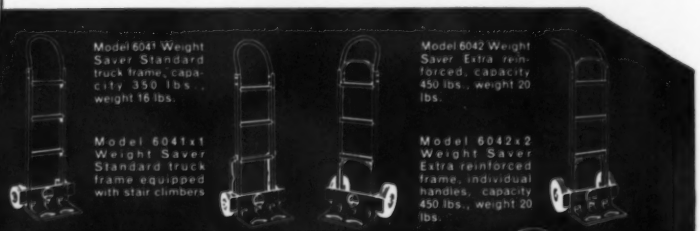
Plan now to modernize your hand truck fleet with light, rugged Colson "Weight Savers". For full information, consult a Colson materials handling specialist. He's listed in the Yellow Pages.

- **easily carried or lifted**
- **unbreakable die-formed toe plate**
- **easy rolling, quiet ball bearing wheels, 6" and 8"**
- **load floating, floor protective balloon tires**
- **rust-proof, break-proof construction**
- **permanently bright attractive appearance**

EASY VERTICAL LIFTING

Colson®

SMOOTH HORIZONTAL ROLLING



Write or phone for recommendation by specialists

The Colson Corporation · General Offices, **Elyria, Ohio**

Factories in Elyria, Boston, Toronto

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WASHINGTON



By Ray M. Stroupe, *Chilton Washington News Bureau*

ICC DEFENDS MERGER POLICY—ICC Chairman Owen Clarke rebuts the charge that the ICC is playing favorites among motor carriers. A report written for the Senate Small Business Committee states that the larger truckers got better treatment than small ones in 1950-56 when applying to merge. Speaking before the committee, Clarke contests the claim. He holds that the report contains contradictory terms and reaches mistaken conclusions.

FARICY IN NEW ROLE—New post for William T. Faricy is that of Chairman of the board and chief executive officer, Association of American Railroads. Faricy's advancement to that position from the AAR presidency was scheduled for Aug. 1. He is up for retirement from the Association next April. His successor as AAR president had not been named in mid-July.

SEAWAY FUNDS UPPED—Congress raises the allowable amount of U.S. investment in the St. Lawrence Seaway project to $140 million. This time the lawmakers trust they've been shown final cost estimates that are really final. Three years ago they heard that $105 million would be enough to finish the job. Blame for the increased cost is placed on inflation and changes in construction plans.

ICC STATISTICAL SHIFT—For efficiency, ICC centralizes the statistical reporting of all rail, water, and motor carriers, pipe lines and freight forwarders. Now the Bureau of Transport Economics and Statistics will process quarterly reports from these sources: Class I motor carriers of property and passengers and Class II motor carriers of property. Formerly, Bureau of Accounts, Cost Finding, and Valuation processed these.

ANTITRUST ACTION IN RATE CASES—Railroads giving concerted rate quotations on government traffic will run afoul of antitrust laws, a federal court rules. This decision by U. S. District Court in Washington rejects a railroad contention that ICC regulation offers immunity against antitrust action in rate cases. Decision comes in a suit filed by nonscheduled airlines against 42 large railroads. The rail lines may appeal.

CRANE TEST RESULTS PUBLISHED—Tests of rotating cranes indicate they have certain advantages as shipboard cargo handling equipment. Cranes installed aboard the MV Thomas Nelson were ahead of conventional boom and winch gear in loading and unloading packaged cargo. Conclusions are tentative, however, cautions Maritime Administration. Results are reported in "Shipboard Cranes and Burtoning Gear," a booklet sold at $1 by the U. S. Commerce Dept.

ICC BUDGET OK'D—More than 95 per cent of the money requested for running the ICC in the fiscal year just begun was approved by Congress. The amount finally voted, and endorsed by the President, was $16.75 million, compared with a request for $17.5 million. No allocation for hiring more motor vehicle safety inspectors is provided in the new budget. In the year ended June 30, ICC operated with a budget of under $15 million.

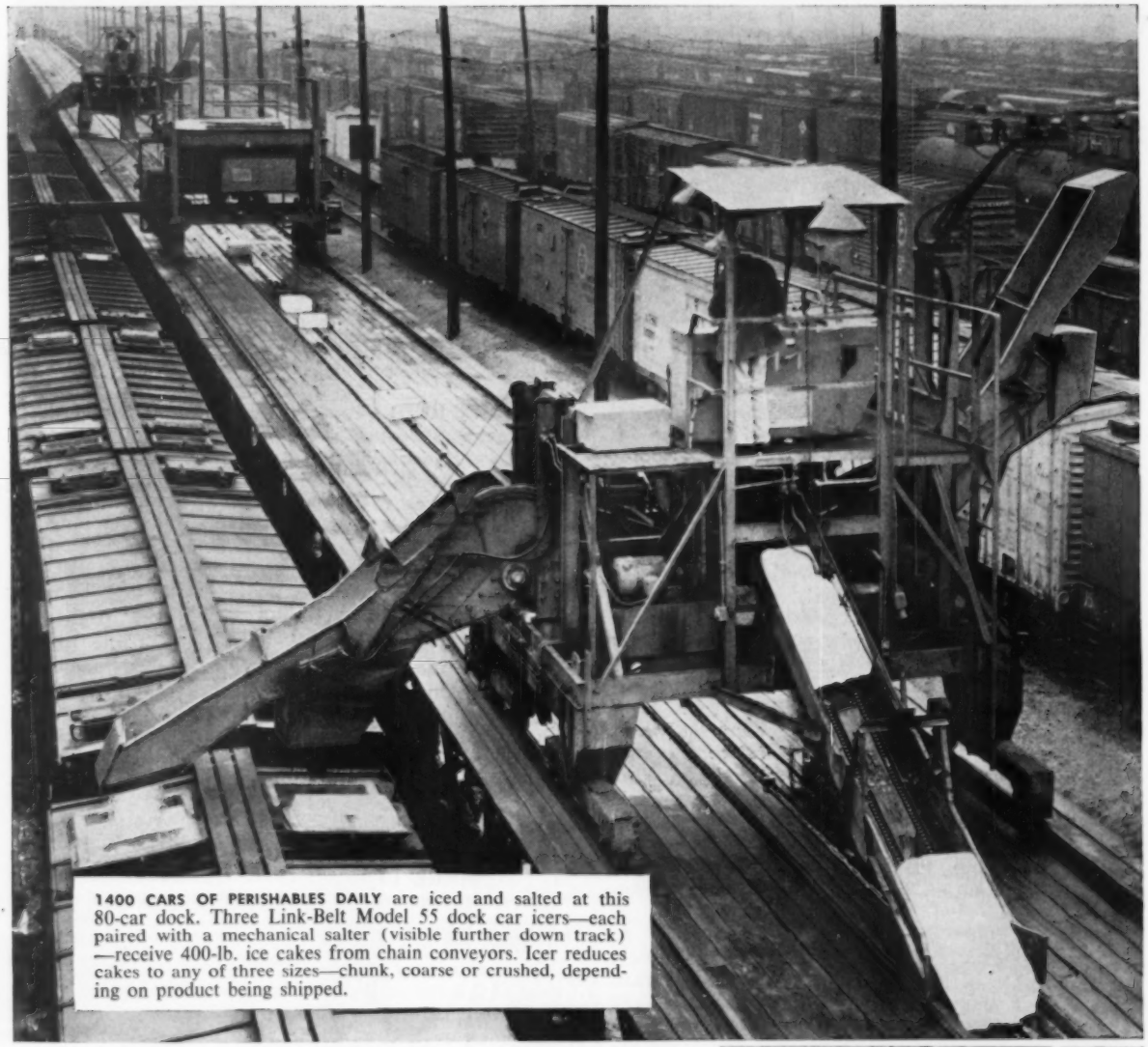
PLANT SPENDING GROWS—Outlays for new plant and equipment by all types of transportation in this July-September quarter are to exceed $3.5 billion. That's over $300 million ahead of the estimated $3.2 billion they were to spend in the previous three months. Government data point to a rise in railroad investment from $1.42 billion last quarter to $1.63 billion in this one. Nonrail spending is to rise $120 million to $1.9 billion.

BARGE LINES UNITE—Formation of the American Commercial Barge Line Co. has ICC approval. Principal firms involved are Commercial Transport Corp. and the American Barge Line Co. ICC authorizes Commercial Transport to take control of American Barge, and other firms owned by the latter, through a stock purchase. In permitting the merger, ICC cancels a portion of American Barge's operating grant.

RULES ON SHIPMENT VALUATION—Valuation charges on shipments of property have no separate tax status, Internal Revenue Service holds. If a shipper declares a value higher than is specified in the tariff, excess-value fees are treated as part of the transportation cost. Transportation tax covers the entire cost, even if the valuation charges are billed separately.

TO GUIDE TRANSPORT—Transportation and storage duties in the U. S. Interior Department office of oil and gas are guided by Earl G. Ellerbrake. He has a background in oil company transportation work. Joining Standard Oil Co. (Ohio) in 1947, he became staff assistant to the vice president of the transportation department in 1949. In 1953 he was named transportation planning group supervisor for the firm in St. Louis.

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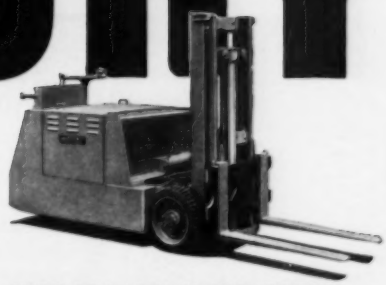
MERCURY ELECTRIC TRUCKS



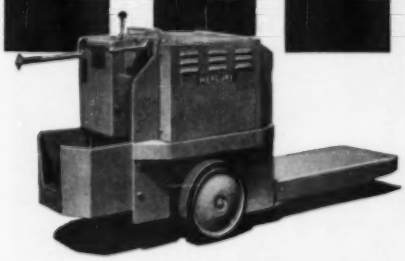
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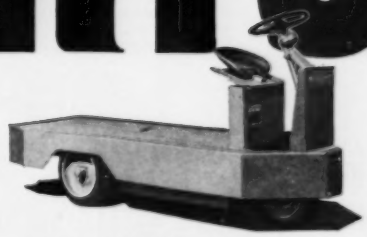
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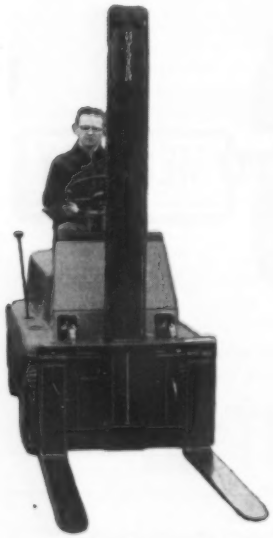
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On the Line—



Happy Anniversary!

Twenty-five years ago, if a traffic manager wanted to ship a case of gimmicks from New York to San Francisco by air, he had to call the railway express office. With a rare exception, the airlines had no provisions for pickup, delivery, interline service; no uniform receipts, waybills, tariffs; no dependable schedules.

The majority of planes were flown and maintained by their owners. When two or three got together, they formed an airline. Their assets were courage and faith in air transportation—plus whatever funds they could promote to buy surplus military aircraft.

Of course, there were some pretty substantial people engaged in commercial aviation. They didn't have to resort to stunt flying exhibitions to pay hangar rental, buy glue, bailing wire and parts to keep flying.

Today we think of flying as fast transportation. Ten years before the Wright brothers got their plane off the ground, Locomotive "999" ran up an 100-mph record. And when the Wrights were cruising along at 27 mph, a railroad chalked up a 127-mph train speed.

When the Wrights, Glenn Curtis and other pioneers were proving that a plane could fly as many as 22 miles, the railroads had a 220,000-mile network of roads backed up by express service—about the same as at present.

A series of events—largely military and air mail—sponsored the apprenticeship of commercial aviation. When government contracts for air mail became available, almost everybody got into the act—including the railroads.

Better organized, better financed and better managed, the railroads set up a strong captive air arm. Next month Railway Express will celebrate the 30th Anniversary of this aggressive and far-sighted move.

However, the Express Company took a big slice of the revenues. For example, in 1928 (its first full year of air service), total air express revenues amounted to $130,774 (according to "Air Commerce Bulletin," U. S. Department of Commerce). Of this, 63,232 (50.9%) went to The American Railway Express Co. The contracting airlines got the rest. Naturally, the airlines were not happy.

As business increased, the airlines started to take exception to some of the contractural provisions: They could "not accept express from any party other than the express company;" rates had to be at least "twice the existing first class rail express rates;" they objected to size and weight restrictions.

In the meantime, the independents were not idle. In 1931, for example, according to the "Air Commerce Bulletin," the now greatly expanded air arm of railway express carried only 13 per cent of the total express poundage. The previous year it carried 61 per cent.

It wasn't long after that the independent air carriers began thinking about organizing themselves as an industry.

So, fathered by the government and mothered by the railroads, the all-air freight transportation business came of age. The historic date was August 8, 1932.

A. W. Greene

EDITOR

Yakkety Yak

Retiring on his 30th Anniversary with the company, the GTM exchanged farewells. But there seemed to be a difference in what some said and what they thought:

Secretary: "I'll always remember you as a man of distinction." ("Your wastebasket always was loaded with whiskey bottles.")

T.M.: "I'm real sorry to see you go." ("Now I'll never collect that $10 you owe me.")

Sales Manager: "Going to be tough without that fat expense account, eh, Freddie?"

AGING—Office Boy: (pitching for pay increase) "Today's my fifth anniversary here, Boss."

Boss: "You want a pension?"

SIZE—President: "Think, boys! What can we do to make Peck & Allen a big name?"

Pat: "Add O'Shaughnessy to it."

IDEA—Celebrating his 25th business anniversary, the boss said to his assembled employes, "I'll pay $25 for the best idea on how we can make Sam's Warehouse stand out as the brightest light in the community."

Voice: "Set fire to it."

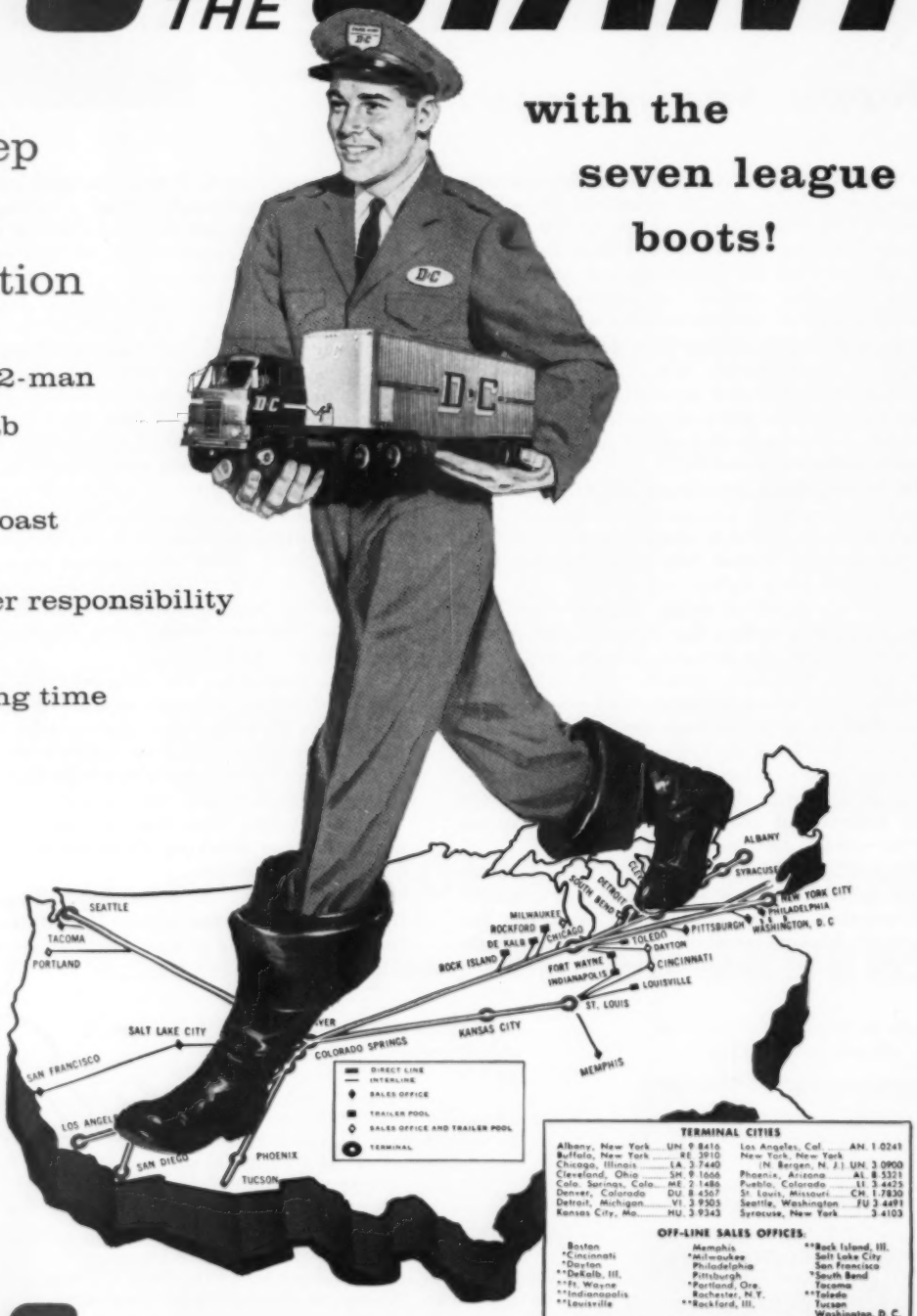
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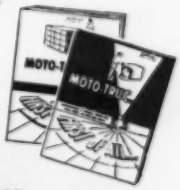
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LETTERS

TO THE EDITOR

Piggy-Back

To the Editor:

Sometime at the end of last year DISTRIBUTION AGE published a routing guide for piggy-back service. Although we do not plan to use this service in the immediate future, our 1958 plans may include piggy-back. May we have a copy of the magazine in which this guide appeared?

A. E. Curtis
Manager
A. B. Smith & Associates
New York, N. Y.

The last DA Piggy-Back Routing Guide was published in January, 1957. DISTRIBUTION AGE currently is working on a revision. Depending on the extent of expansion in piggy-back since the last Guide was published, the new material will be printed either as a completely revised edition, or as a supplement to the previous Guide. In either case, the new material will appear in the October issue of this magazine. Copies of the January Guide still are available through this office.—The Editor.

Public Warehousing

To the Editor:

We have been searching for figures which will give us an overall picture of the public warehousing industry. We are interested in the number and types of public warehouses in the country, gross volume last year, etc. Have you published such figures? If not, are they available from any other source?

Windsor Fernette
Vice President
Carroll Research
Los Angeles, Calif.

According to the 1954 Census of Business, conducted by the Bureau of Census, there were 7,603 public warehouses in the United States at the close of business in 1954.

The Census, which includes the latest figures available, breaks down the total as follows:

General merchandise, 1197; household goods, 1828; refrigerated, 585; food locker plants, 2485; farm products, 1083; special warehouses, 267; freight trucking terminals (other than firms which also operate trucks), 158.

It should be noted, however, that these figures do not reflect a complete picture of the public warehouse industry. The Bureau of Census lists a single establishment only once—under that category which is responsible for the major portion of its volume.

For example, a single firm may conduct both merchandise and refriger-

ated operations under a single roof. If the merchandise volume accounts for 60 per cent of the firm's business and the refrigerated volume 40 per cent, that firm is listed by the Bureau of Census as a merchandise warehouse only.

Total revenue for all public warehouses is listed at $761,893,000. The warehouse payroll for the entire year amounted to $304,627,000. This total was paid to 94,872 warehouse employes.

Space figures included were: Dry, 309,152,000 sq ft; refrigerated, 349,708,000 cu ft; bulk liquid, 276,647,000 gal; bulk freezer, 2,487,262 cu ft. This space is in addition to 1,373,358 food lockers, most of which are in the food locker plants.

All of the above figures are reported in full for each type of warehouse operation, and are broken down by state and region.

These figures were published in the August, 1956, issue of DISTRIBUTION AGE. *They were taken from the preliminary report of the Bureau of Census. Unfortunately, additional copies of the August issues are no longer available.*

However, the complete 52-page report was published by the Bureau of Census last month. Single copies can be ordered at 50¢ each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Request Form W-2-11, 1954 Census of Business - Public Warehouses.—The Editor.

Warehouse Law

To the Editor:

In the June issue of DISTRIBUTION AGE, Leo T. Parker discusses the Bekins case in which the appellate court allowed Bekins to lump several warehouses together to qualify for exemption under the Fair Labor Standards Act. The U. S. Supreme Court recently reversed this decision.

It now appears that the safest course in the Bekins situation is to treat each warehouse separately. It, however, does not appear that the case precludes lumping several structures in applying the test, where several warehouses represent one business and are located in one neighborhood.

W. Scott Clark
Secretary
Southwest Warehouse &
Transfermen's Assn.
Fort Worth, Texas.

We are grateful to Mr. Scott for this reminder. Mr. Parker's original article was prepared before the latest Supreme Court decision was made public. It is expected that Mr. Parker will review the entire case in an early issue of DISTRIBUTION AGE.—*The Editor.*

Letters for publication in DISTRIBUTION AGE must be signed and must give the writer's title and company affiliation. Names will be withheld upon request.

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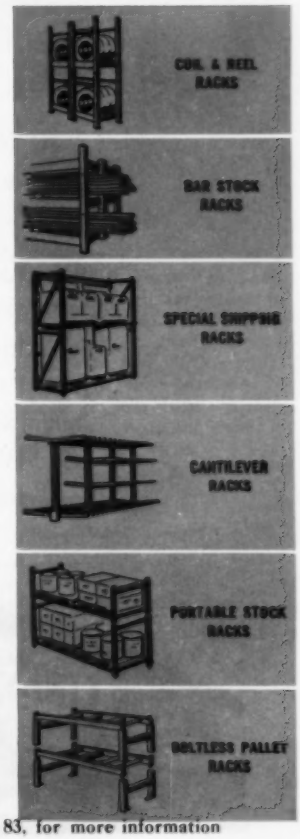


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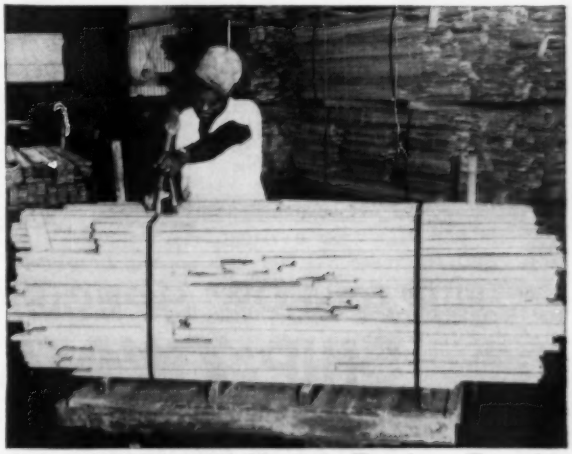
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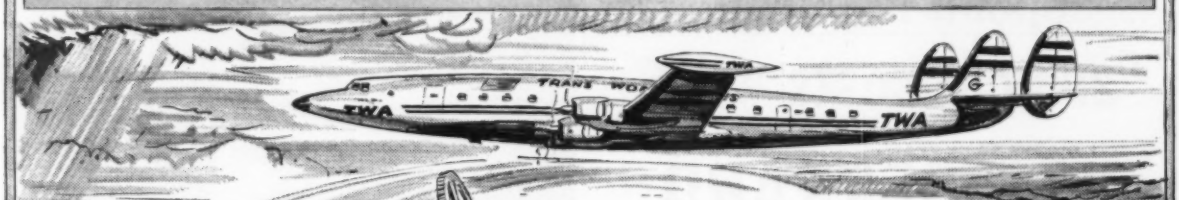
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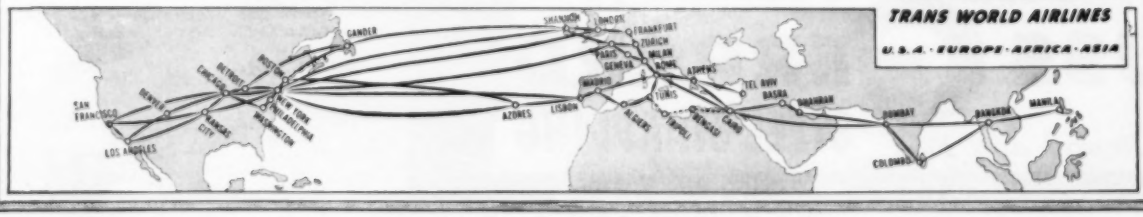


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By John H. Frederick
DA Distribution Consultant

AUGUST, 1957 . . . Vol. 56, No. 8

Air Freight Logs 25 Years of Progress

Unified air freight, under a uniform waybill and a single uniform rate for interline service, was offered by seven airlines for the first time in 1932

AIR FREIGHT traces its history to August 8, 1932. On that date seven airlines combined resources and for the first time offered an airline sponsored unified express service over their routes. The organization was known as General Air Express.

Of course there were earlier developments in the air freight field. One of the first experiments involving transportation of property by air took place in the winter of 1919. The American Railway Express Co. loaded a Handley-Page bomber with 1,100 lb. for a flight from Chicago to New York. A series of accidents caused the flight to terminate at Cleveland. The goods were sent the rest of the way by rail.

From that time until 1927, there were some minor developments by individual operators. However, the irregular nature of the business combined with inefficient aircraft resulted in high charges which were not attractive to shippers.

Air Mail Contract

In 1926 Congress provided that carriage of air mail should be transferred from the Post Office Department to private carriers on a contract basis. Carriage of mail on fixed schedules provided a constant source of revenue. This formed a basis for the transportation of shipments at rates considerably lower than they had been. It opened the way for the development of air express and air freight services as we know them today.

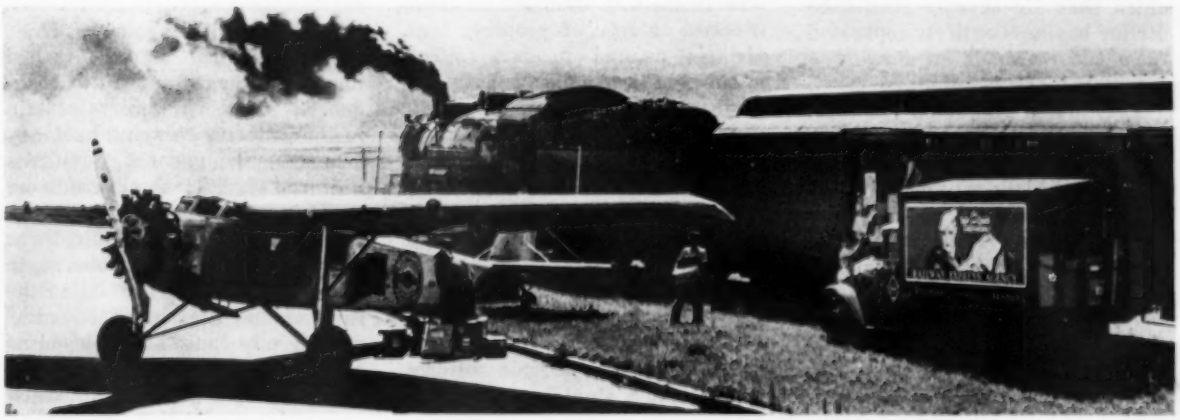
The following year American Railway Express Co. entered into contracts with four airlines establishing an air express service under essentially the same type of arrangement that has existed to this day. The express company contracted to perform local pickup and delivery and any necessary surface transportation to off-line points. It also conducted all direct relations with the public.

The air carriers loaded and unloaded the aircraft and performed the line-haul. In fact, to this day, American Railway Express Co. and its successor, Railway Express Agency, have been strictly ground-service organizations. They have never actually flown a pound of express.

By the end of 1929, the air express system covered the routes of 10 airlines offering direct service

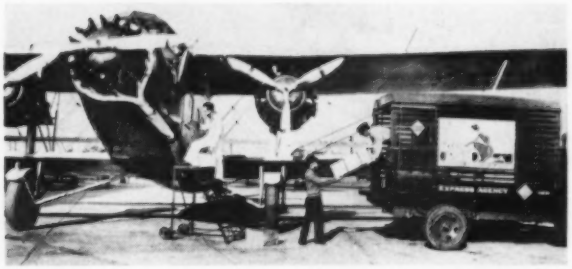
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Express being transferred from train to Hamilton monoplane at St. Paul Airport for flight to Chicago. Service was started in 1928 by Northwest Orient Airlines



The Sky Caravan

No history of air freight would be complete without mention of the pioneer equipment. Part of this "sky caravan" is shown here and on the four following pages. Most of the earlier planes were developed for mail and passengers. Cargo was almost an afterthought. Nevertheless, these "early birds" played an important role in the development of air freight.



A 1929 view of a Boeing 80-A at the Chicago station of United Air Lines shows the bucket-brigade method of loading



Early ground handling improvement involved use of conveyorized loading, as demonstrated by American Airlines



Crate being loaded by crane through topside Cargo hatch was part of Panagra's first heavy air freight contract

Air Freight Logs . . .

(Continued from Preceding Page)

to 82 cities. It carried 75 per cent of the nation's total air express.

General Air Express

In 1932, the seven airlines decided that air express should be airline business entirely separated from the railroads or a railroad dominated organization.

They were: American Airways, Transcontinental & Western Air, Eastern Air Transport, Trans-American Airlines Corp., U. S. Airways, Pennsylvania Airlines and Ludington Airlines. These companies organized General Air Express to be managed by an interline committee and providing a unified express service over their routes.

As mentioned above, GAE was formed on August 8. Tariff No. 1 was published and the first GAE flight was made on October 4 of the same year. At this time the name "air express" was coined. It was in no way intended to limit the size or type of property that airlines wanted to carry. The name express was a sales device to emphasize the speed of shipment. This was the main selling point.

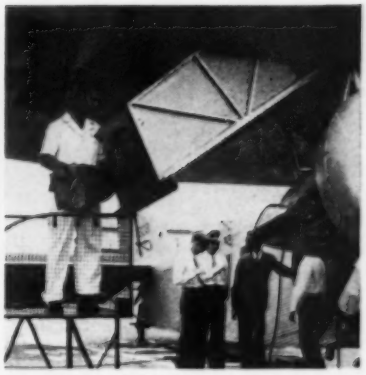
Pickup and delivery were handled by the messengers of telegraph companies. This system was well adapted to the small packages then moving by air. It also associated the speed of the telegraph with air transportation in the minds of shippers and receivers. Provision was made for a uniform waybill and a single uniform rate for interline shipments.

GAE was the first major rival of the REA service, and it lasted until 1935. In that year all but Transcontinental & Western Air abandoned their own organization and signed contracts with REA. Transcontinental & Western fought the rail-air alliance and for a short time tried to promote air express as an independent operator. In 1937 it too joined REA.

It seemed that the airlines had no other alternative than to abandon GAE if they were to remain in the property carrying business. The REA arrangement provided a uniform service; shipments were becoming too heavy for the telegraph messengers to handle, there seemed to be considerable waste in two organizations soliciting the same traffic; the most economical routing now could be employed no matter which airline actually handled the shipment; and unification



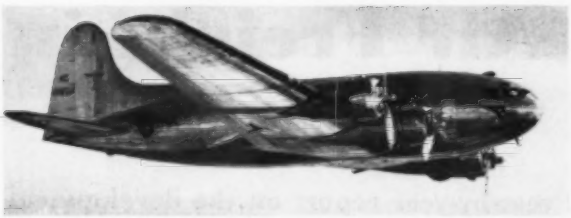
One of the two Stinsons with which Northeast Airlines began operations in 1933. Northeast was first called National, then Boston-Maine, then Northeast



Above: TWA crewman loading mail in wing of Ford tri-motor plane in 1932



Left: Delta Air Corp. operated this 120-mph, low-wing Stinson A in 1935



This Boeing 307 Strato Clipper operated by Pan American was the first large airliner with a pressurized interior



Known as the "tin goose" the Ford tri-motor was used extensively in the early '30s. This ship belonged to Capital

of ground handling would reduce the costs of pickup and delivery with more traffic over which to spread such costs.

It is doubtful, however, if General Air Express would have been abandoned so quickly had the airlines not been in a somewhat chaotic state following the 1934 air mail contract cancellations. Had they been in a stronger financial position and able to create an airline-owned pickup and delivery system GAE might have endured.

The REA-airlines contract made possible a national air express system. This, coupled with the spending of considerable amounts of money for cargo development by the airlines, general improvement in the regularity of air service, and improved business conditions, led to steady increases in property traffic.

During World War II the speed of air transportation for shipping came into its own. Many items, which under normal conditions would have been entirely unsuited for this method, were shipped by air. The nature and advantages of air shipment were discovered for the first time by many new shippers and receivers. The transcontinental airlines started daily schedules carrying only mail and express. Several airlines undertook studies of ways to develop freight traffic as well as methods for handling it.

First Individual Tariff

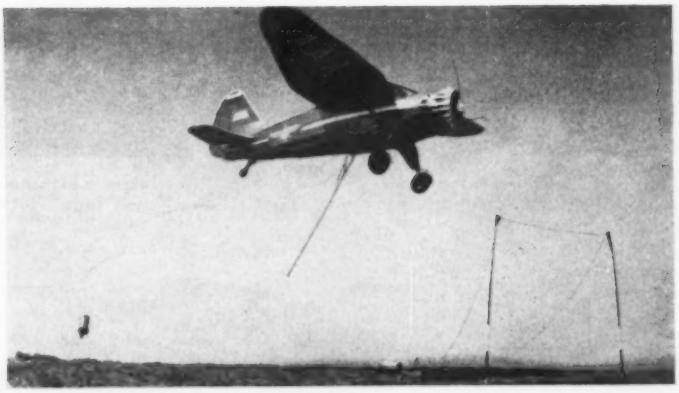
American Airlines led the way by filing the first air freight tariff in October, 1944. This offered a service somewhat slower than air express, for generally larger shipments, at considerably lower rates.

For at least a year after the end of the war, most of the scheduled airlines did not actively promote air freight. It was not until the middle of 1946 that all of them had filed tariffs providing for such service in addition to air express. Delay in the development of air freight services doubtless was due to the fact that the scheduled airlines carrying passengers, mail, express and freight were faced with many problems in establishing their post-war passenger business.

There was also the feeling among many airline executives that freight traffic would not, for some time, yield any significant profit at the rate levels required to promote business.

This attitude is understandable. It was probably natural that the attention of the airlines should have successively shifted from mail to passengers and last to freight. This same order applies in general to the relative importance of speed to these three

(*Please Turn to Page* 86)



Between 1939 and 1949, Allegheny Airlines, then known as All American, used this pick-up system for mail and freight at non-airport cities

U. S. Air Freight in

A year-by-year report on the development

THE FIRST air freight shipment on record for powered flight is a 70-lb cargo of silk carried from Dayton to Columbus, Ohio, a distance of 58.3 miles. It was a rail transshipment, originating in New York City. Date: November 7, 1910. Time: 59 minutes. Tariff: $71.42 lb. Carrier: Wright Co. (operated by brothers Orville and Wilbur).

Air transportation's future, because of "potential personal hazards" to passengers, appeared to be in freight. The turn of events, however, took a different direction.

The fledgling found itself in tough competition with a railroad operating a tried, tested 240,000-mile network of transportation service.

There were not enough planes, routes or schedules to attract the volume of freight needed to keep air carriers in business. The charges were very high.

Air carriers only provided airport to airport service. There was no interline service. There was no stability; carriers operating one day, might be out of business the next.

The first ray of hope came in May 1918, when the U. S. Post Office inaugurated air mail service between New York City, Philadelphia and Washington, D. C. The following year the service was expanded to Chicago.

On November 14, 1919, The American Railway Express Co. sponsored an express flight from New York to Chicago. After a series of mishaps, it terminated at Mt. Jewett, Pa. The shipment got to Chicago by rail.

The big chance came in 1925. Congress passed the Kelly air mail act, which permitted carriage of mail by private contractors. Scores of airlines were organized with the hope of landing mail contracts. While marking time, they carried passengers and all kinds of commodities. It still was an unorganized, catch-as-catch-can business.

When the government got out of the air mail transportation business, The American Railway Express Co. regained interest in air express. On September 1, 1927, it contracted for air express transportation with Colonial Air Transport, Western Air Express, National Air Transport and Boeing Air Transport. Thus the railroads provided a coordinated, coast-to-coast express service that included pickup and delivery, land-air or all-air routings, a specific tariff and a common set of forms.

In 1929, Colonial Airways broke its railroad contract and continued business as an independent. A contract was made with Western Union Telegraph Co. to provide pickup and delivery service. In 1931, Transcontinental and Western Air made a similar arrangement with Postal Telegraph Co. Thus began a trend that led to the airlines' organization, operation and control of their own freight transportation service.

1932

Aug. 8 — General Air Express organized by seven major airlines. They were: American Airways, Transcontinental and Western Air, Pennsylvania Airlines, United States Airways, Trans-American Airlines, Luddington Airlines, Eastern Air Transport. Tariff No. 1 issued. Postal Telegraph contracted to provide pickup and delivery.

Oct. 4 — GAE service inaugurated. Provision was made for a single uniform rate for interline shipments, and a uniform waybill.

Also in 1932 — New contracts entered by Air Express Division of Railway Express Agency and National Parks Airways, Northwest Airways, United Air Lines, and Western Air Express.

1933

June 21—GAE Tariff No. 2 issued.

Nov. 24—Aeronautics Branch, Dept. of Commerce, announced airport development program in cooperation with Civil Works Administration.

1934

Feb. 9 — Air mail contracts canceled. Army ordered to carry all mail. New mail contracts awarded only to operators not holding contracts prior to cancellation. Air transport industry reorganized and transport system of today set up.

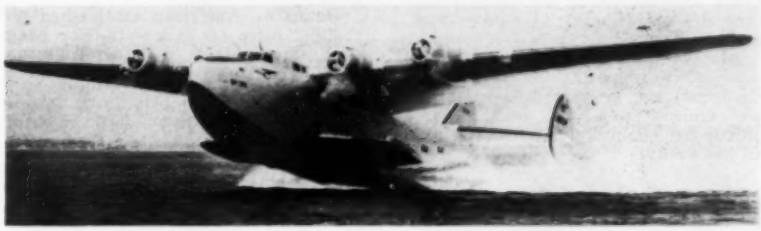
Aug.—Pan American and Railway Express sign contract joining 23,000 points served by REA to West In-



Called first cargo loader, this tractor-mounted unit was built by Raymond



Douglas Aircraft's DC-3, which carried 125 passengers, baggage and cargo, at a speed of 170 mph, was pressed into service in 1941 by Delta Air Lines



This Boeing 314 Clipper, launched in 1939, was used to inaugurate Pan American's first trans-Atlantic passenger and air mail service on regular runs

Review

of air cargo service



The first U. S. overseas air mail route, a 90-mile run from Key West, Fla., to Havana, Cuba, was started in 1927 by Pan American using these Fokker F-7s



Consolidated Vultee airfreighter operated by American Airlines taking a load of furniture from a household goods van operated by Chelsea Warehouses, Inc.

dies, Central and South America, and later the Far East.

Aug. 15—GAE Tariff No. 3 issued.

Also in 1934—U. S. air carriers flew 2,946,460 lb of express during the year.

1935

Nov. 22 — Pan American begins trans-Pacific air mail service.

Also in 1935—All airlines but TWA leave General Air Express and join Railway Express contract.

1936

Feb. 1 — New air express pickup service. Railway Express and 23 airlines serve 215 cities.

Oct. 19 — TWA opened first air freight service using flying box cars (3500-lb cargo capacity Fords).

Also in 1936—Five airlines joined in financing and developing first experimental air transport, a four engine, 230 mph, 25-ton, 40 passenger, two-ton cargo capacity ship.

1937

April 28—Bureau of Air Commerce completely reorganized.

May 23—BAC began work on $5-million airways modernization program.

Sept. 1—TWA joined Railway Express service.

Nov. 1—Revised Civil Air Regulations in effect.

1938

June 23—Civil Aeronautics Authority created. Consists of five members, executive administrator, and three-man safety board.

Aug. 22 — Civil Aeronautics Act, which coordinates all civil aviation under the CAA, becomes effective.

Also in 1938 — Railway Express joined by Western Union in pickup of air express.

1939

May 20—First North Atlantic air mail service started between Long Island and the Azores, Portugal, and France.

Also in 1939—By contract with Pan American, Railway Express extended its service to 47 colonies and countries overseas.

1940

July 1—Civil Aeronautics Authority

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. . . Freight in Review

(Continued from Preceding Page)

becomes part of the Commerce Department, and the Authority becomes the Civil Aeronautics Board.

July 12 — Air Traffic Conference Tariff No. 1 issued.

1941

July 10 — Universal Air Freight Corp. started using existing airline facilities and serving 14 major cities, in first forwarding type operation.

Also in 1941 — Certain certificated airlines, anticipating not renewing REA contract, organized firm to study air freight potential and provide pickup and delivery. War interrupted all but study.

1942

Jan. 19—Naval Air Transport Service organized.

April 20 — Army announces contracts with domestic lines for utilization of services and equipment in war operations.

June 1 — Air Transport Command established.

1943

Feb. 19—Aeronautical Chamber of Commerce reorganized.

April—Four motor carriers file with CAB seeking permits to operate their own air cargo planes.

July 15—Railway Express Agency Tariff No. 7 issued.

Aug. 20 — American begins first coast-to-coast all-cargo service.

Oct. 16—First DC-3 United Cargoliner begins service.

Also in 1943—National Furniture Warehousemen's Assn. names committee to study potential of air freight in household goods industry.

1944

May — First air carrier certificate application filed by a New York household goods mover.

Oct. 1 — American established air freight rates on a door-to-door basis with shipments on a deferred status. Tariff effective Oct. 15.

1945

Jan. — Commercial air transport service across the Atlantic resumed.

Also in 1945 — Air Transport Association of America reorganized. Three more airlines file first air freight tariff, and Air Express rates now average 70¢ per ton mile.

1946

Mar. 12—First commercial helicopter license issued by CAA.

May 13 — President signs Airport Bill authorizing federal expenditure of $500 million for airport development over the next seven years.

Also in 1946—Many non-scheduled carriers organized and began operations in the spring. Air express rates reduced.

1947

May 8—CAB modified its Economic Regulations to set up a new classification of carriers to be known as "non-certificated cargo carriers."

June 10 — CAB issued temporary exemptions to all air freight carriers.

Oct. 14 — Coordinated air-truck service seen as a result of the Air Cargo, Inc.-American Trucking Associations pact.

Also in 1947—Earlier in the year Air Cargo, Inc., had been revived to provide contracts for ground transportation and terminal facilities and to act as a clearing house for certificated carriers.

1948

Mar. 1—Airlines and REA cancel contract for International Air Express. Freight forwarders to become principal international air cargo agents.

April 23—CAB sets 16¢ per ton-mile floor in the first use of its rate fixing power.

Sept. 2 — CAB permits air freight forwarder operations for the first time under five-year permits and CAB supervision.

1949

Mar. 2—First non-stop flight around the world completed by Boeing B-50 bomber.

July 29—CAB certificates first all-cargo carriers: Slick, Flying Tiger, Airnews, and U. S. Airlines.

1950

April 7—Five airlines complete first coast-to-coast flight by interchange of planes.

April 10—Opinion and supplemental order of CAB sets minimum directional commodity rates at 60 per cent of previous minimum yield of 13¢ per ton-mile.

Pilot and co-pilot help unload Trans World Airlines' first air freight shipment at Newark, N. J., on August 6, 1931



Inauguration of Amsterdam-London service in 1920. Man in center (hands in pocket) is KLM founder Dr. Plesman



1951

July—Slick puts into service first plane (DC-6A) built exclusively to haul air cargo.

Also in 1951—Korean action interrupted plans of numerous non-scheduled airlines to offer air freight service on a larger scale.

1952

Feb. 26—President appoints special Airports Commission to study national airport safety situation.

Also in 1952—At least three major airline merger announcements made. Railway Express Agency-Airlines agreement get temporary OK (DISTRIBUTION AGE, July, 1952, p. 23).

1953

Oct.—CAB reported considering air mail experiment. For one year all first-class mail may go by air on a space-available basis.

Nov.—In an unprecedented rate-making action, the CAB required all air freight carriers to increase minimum rates for air cargo by at least 25 per cent, with proportionate increases in any below-minimum directional rates which had been allowed.

1954

Sept.—President issues report of his Air Coordinating Committee's review of our federal aviation policies. Report says:

1. Air cargo, particularly all-cargo, is in the national interest and should be encouraged.
2. Military and civil agencies should cooperate in developing all-cargo planes.
3. Federal government should use civilian air cargo facilities.
4. All-cargo carriers should be certificated for longer periods.

1955

Jan.—Pan American and United introduce air freight reservations.

May 19—President signs bill giving all local service airlines permanent certificates.

July 10—Published rates for new transcontinental truck-air-truck freight service announced by Slick, Associated Transport, and Western Truck Lines.

1956

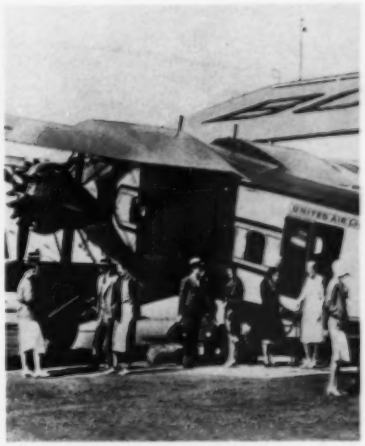
March—Four domestic all-cargo lines, whose original certificates had expired, receive new five-year certificates. They are: Slick, Flying Tiger, Riddle, and American Air Export & Import.

Also in 1956—DISTRIBUTION AGE (Feb., p. 45) reports on new CAB rate ruling renewing operating authority for most domestic air freight forwarders for an indefinite period and granting them additional privileges. (At the same time CAB denied Air Cargo, Inc., application to engage in air freight forwarding.)

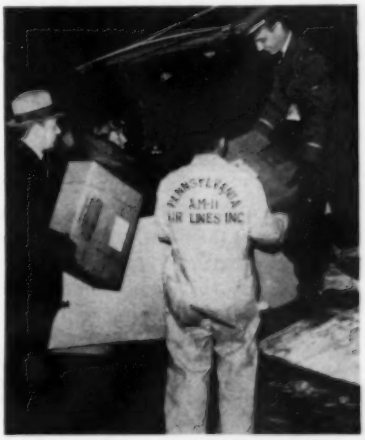
1957

June 5—Three-phase program designed to produce a practical aircraft collision avoidance research study announced by Air Research and Development Command.

June 26—Air transport agreement between United States and Australia announced. Australia permitted to fly the heavily traveled San Francisco-New York Route to Europe. U. S. Chamber of Commerce claims that reciprocal rights granted by Australia do not even exist, or are in no demand.

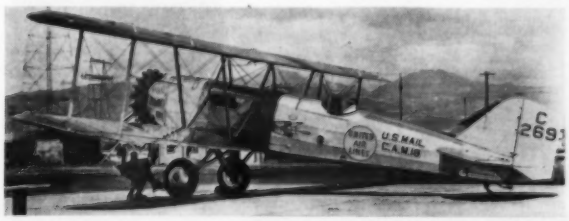


1929 Tri-motor Boeing 80-A was used on United's San Francisco-Chicago run



Pennsylvania Air Lines used these cloth covered bi-planes for air mail

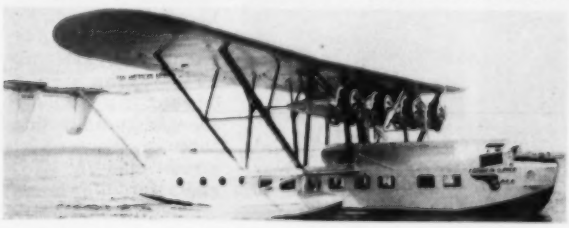
These Boeing 40-B2s carried mail and passengers between Chicago-San Francisco in 1927 for Boeing Air Transport



In 1926 Northwest Airlines modernized its fleet with three of these Stinson Detroiters on its Twin City-Chicago run



Sikorsky S-40, first four-engine clipper, was launched in 1932. It had 575-hp engines and cruised at 115 mph



Consolidated Aircraft Corp's. Commodore Clipper was used on trans-Caribbean and East Coast South American routes



These Are the Pioneers

HERE ARE some of the men who pioneered in aviation and airlines.

The list is not complete. No story of the men who built aviation would be complete without the names of many great adventurers who tested the planes and built public confidence through spectacular flights and feats.

However, these pioneers are men who have contributed directly to the development of the airline as a means of transportation. This has not ruled out the men who were adventurers in the days of barnstorming; it has included adventurers of flight who entered airline service along with adventurers of business who have provided airline management.



D. L. BEHNCKE, first Northwest Orient Airlines pilot, was co-founder and first president of the Air Line Pilots Association. He died in 1953.



L. H. BRITTIN, founder and, for many years, vice president - general manager of Northwest Orient Airlines, guided the line from a single mail route into an international air carrier. He died four years ago.



D. W. RENTZEL, chairman of the Board of Slick Airways, is a former chairman of the CAB and a former administrator of the CAA. He entered actively into the aviation industry in 1931 as a radio operator - pilot for American Airlines. He accepted his position with Slick in 1954.



G. W. HALDEMAN, safety director for National Airlines, returned to commercial aviation after working for government aviation agencies for 20 years. A test pilot and flight school operator in the 1920s, he, with Eddie Stinson, broke the flight endurance record in 1928.



CHARLES HOLMAN, a pioneer pilot of Northwest Orient Airlines, won the stunt flying contest of the National Pulitzer Races, St. Louis, in 1923. This was only the first of many national records and races to be won by "Speed" in a short career during aviation's period of adventure. He was killed stunting at Omaha air show in 1931 when a safety belt failed to hold as he pulled out of a power dive.



G. T. BAKER, president and chairman of the Board of National Airlines, had his sights on aviation from boyhood. He entered the field by selling planes and became a founder of National in 1934 when he won an air mail contract in Florida.



L. D. ANDERSON, base chief pilot at Memphis for Delta Air Lines, was the first pilot to be employed by Chicago & Southern Air Lines, known at the time as Pacific Seaboard. He has been flying since 1928.



M. G. BEARD learned to fly in World War I. After returning to college, he became chief test pilot and installation engineer for Fairchild Engine and Aircraft Co., a predecessor company of American Airlines. Along with William Littlewood, "Dan" Beard was at the center of the AA engineering department during the development of many famous air transports. Today he is assistant vice president-research.



R. J. SMITH, president of Slick Airways, became interested in flying while in the Army in World War I. In 1928 he became general traffic manager for Texas Air Transport and a year later he accepted a similar position with American Airways. Before entering the service in World War II he was executive vice president of Braniff Airways. He was named president of Slick Airways in May, 1956.



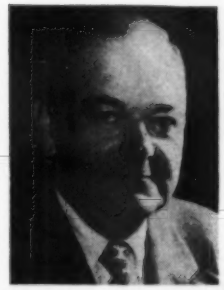
C. E. WOOLMAN, president and general manager of Delta Air Lines, learned to fly in World War I and entered commercial aviation as a crop duster. His company changed to an airline through a successful airmail bid in 1927, and started passenger service in 1929.



Varney Air Lines picture of 1926 shows (from left) Pilots Joe Taff and Franklin Rose; Hal Bruntsch; Mrs. W. T. Varney; W. T. Varney, founder; his father, T. H. B. Varney; Chief Pilot L. Cuddeback; a Varney family chauffeur; and a Post Office Department representative

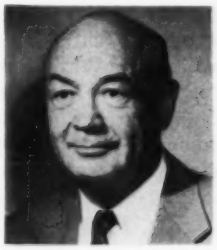


Vern C. Gorst (left), of Pacific Air Transport, and T. C. Ryan, aircraft manufacturer, at Sand Point Field near Seattle in 1926



C. R. SMITH, president of American Airlines, Inc., learned to fly and became vice president of Texas Air Transport, Inc., in 1928. Except for his Army service in World War II he has been engaged in air transportation with American or its predecessors ever since. He has served as a consultant to the government on many transportation problems.

After barnstorming in 1923-24, he formed Embry-Riddle Co. in Cincinnati. This company became part of American Airlines. In 1939, he formed a second Embry-Riddle Co. —this one in Florida. Riddle Airlines was formed in 1945.



OSBUERN McCRAW, passenger service manager for Aloah Airline, is a veteran of 28 years' service in aviation. Starting with Hawaii's Inter-Island Airways, he was assistant operations manager.



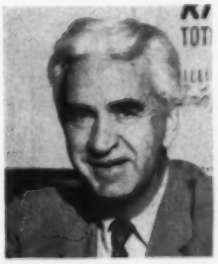
NICK BEZ, president and a founder of West Coast Airlines, became interested in aviation in 1931. At that time he started Alaska Southern Airways, a line later sold to Pan American. In 1940 he filed for a certificate for West Coast routes.



Wien Airlines pioneers include Fritz, vice president-operation; Noel, the founder; and Sigurd Wien, president and general manager



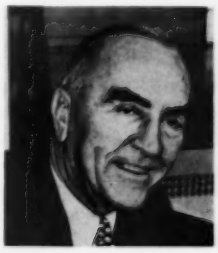
J. H. Carmichael, president; Clifford Ball, founder; and Merle Moltrup, first pilot re-enacting pioneer flight of Capital Airlines



J. P. RIDDLE, founder of Riddle Airlines, graduated from the Army Advance Flying School, Kelly Field, Texas, in 1922.



CHARLES DICKINSON, Chicago seed



E. V. RICKENBACKER, chairman of the Board and former president of Eastern Air Lines, entered aviation while in the Army in World War I. Returning from war as an ace, he entered the automobile industry. General Motors, in 1929, transferred him from Cadillac to General Aviation. He became general manager of Eastern in 1935.



BEN CATLIN, Delta Air Lines flight captain, learned to fly in

(Turn to Page 94)



Airlines, such as Wien Alaska, were gaining experience in flying cargo even before smooth runways and fast surface transportation waited to meet planes

These Are the Pioneer

THE history of air freight is not complete without the story of the companies which put aviation to work.

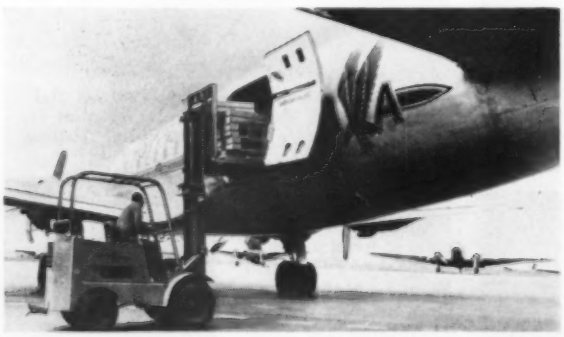
When the seven carriers joined in General Air Express, the business of scheduled flying had already begun.

Consolidations and mergers were creating transcontinental systems out of smaller companies offering service between two or a few cities.

Here are brief histories of some of the lines serving the United States when the first cargo moved under the General Air Express tariff.

While they are pioneers in aviation, they also are "present carriers," having retained positions of leadership in the air carrier picture in 1957. Here is their story below.•

American Airlines



American Airlines carries cargo under its Airfreight Div.

American Airlines, one of the seven companies initially joining in the General Air Express service, brought into the 1932 program experience gained in flying cargo during the 1920s. Before the formation of American Airways in 1930, its predecessor companies had entered into several organizational experiments endeavoring to develop air cargo.

The first phase of American's development ended in February, 1934, when the Post Office Department cancelled the air mail contracts of all carriers. At that time American Airways became American Airlines.

From 1934 to 1942 the emphasis was on building public confidence in air transportation. Part of this program was the standardization of equipment. In 1934 the fleet consisted of an assortment of Curtiss Condors, Fords, Lockheeds, Stinsons, Stearmans, Vultees and others.

With the development of the DC-3, a balance of speed, gross weight, power, payload space and wing area was achieved. In 1936 the first of these went into service.

Another landmark in American's growth came in 1940, when the company changed from a domestic

Meet the Freight Pioneers

In August, 1932 seven airlines joined in General Air Express, the first airline-sponsored group to issue a tariff for carrying property on scheduled planes. Here are the pioneers and their present names:

American Airways—American Airlines
Eastern Air Transport—Eastern Air Lines
Ludington Airlines—no longer certificated
Pennsylvania Airlines—Capital Airlines
Transamerican Airlines Corp.—no longer certificated
Transcontinental & Western Air — Trans World Airlines
United States Airways—no longer certificated.

Airlines

carrier to an international carrier by extending service into Canada. Since that time, AA has pushed an airlane south to Mexico City.

Seeing the success of the airplane as a high-speed general cargo transport in World War II, American established an Airfreight Division in 1944. This operation has grown until American has passed the seven-million ton-miles-a-month mark five times.

Capital Airlines



Jet-prop Viscounts carry passengers and cargo for Capital

Capital Airlines, then known as Pennsylvania Airlines, was also one of the seven lines which formed GSA.

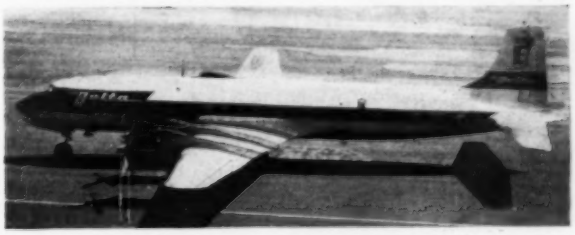
Capital started in 1927, when Clifford Ball started using seven tiny cloth-covered Wacos left him in payment of storage charges, to fly mail between Pittsburgh and Cleveland. Today the line ranks among the largest in the nation.

Started with air mail as its principal source of income, the company was stripped of its income in the 1934 cancellation of air mail contracts. Forced with the rest of the industry to find new income, the company replaced the Wacos with Fairchild FC-2s, a cabin plane for two passengers. Later, it added the famous Ford Tri-motor, first of the large transport planes.

A merger in 1936 ended several years of heated competition between Pennsylvania and Central Airlines. In 1948 Pennsylvania and Central became Capital Airlines.

An innovation in air freight handling at Capital is an assembly and distribution service. The company accepts a mixed shipment and separates it for distribution to several destinations on a single charge.

Delta Air Lines



Delta last year flew air freight 7,783,880 ton miles

Delta Air Lines, Inc., traces its beginning to a crop-dusting business started in 1924 and 1925. Founder Collett Woolman and his flyers entered the air line business with a route in South America. This route was later sold.

On June 1, 1929, using the name Delta Air Service, Inc., and three six-passenger Travelaires, the line started its first scheduled passenger flight between Dallas and Jackson.

A merger in 1953 brought Chicago and Southern Air Lines, which had been organized in 1933 as Pacific Seaboard Air Lines, into the Delta organization.

The airline now serves 57 cities over a 10,765-mile route system. It operates both combination passenger-cargo and all-cargo planes.

Continuing its development of air freight, Delta on August 15 will increase its all-cargo service by 600 per cent. This will result from the addition of five more C-46 cargo planes to the fleet.

The initial schedule will cover five cities. By September 1, when the development is expected to be completed, 12 cities will be included. For three of these—New York, Philadelphia, and Charlotte—the C-47s will provide Delta's scheduled freight service for the first time.

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. . . Pioneer Airlines

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Hawaiian Airlines



Hawaiian began operating in 1929 with two Sikorsky S-38s

Founded in 1929, Hawaiian Airlines began operations as a scheduled air passenger and cargo carrier between the islands of the Territory. It was a wholly-owned subsidiary of the Inter-Island Steam Navigation Co., Ltd.

From its original fleet of two Sikorsky S-38 aircraft, the company has expanded to five Convair-340 passenger-cargo planes, six Douglas DC-3 combinations, and two DC-3 all-cargo aircraft.

The company entered the air freight picture with two air freighters on March 20, 1942. Cargo now makes up 25 per cent of its revenue ton-mile volume.

Hawaiian's cargo is composed largely of low-value commodities. Its leading commodities, in volume carried, are fresh bread, daily newspapers, fresh island-grown lettuce, and fresh tuna fish.

Eastern Airlines



Ground crew attaches cargo pod to an Eastern Constellation

Eastern started in 1928 when five pilots took off in 200-hp Mailwing aircraft from New York with mail for Atlanta. Harold F. Pitcairn, who built aircraft and operated a landing field near Philadelphia, was the founder.

Pitcairn decided to be a builder rather than an airline operator. On July 10, 1929, less than four months ahead of the stock market crash, he sold his airline to North American Aviation, Inc.

During the depression years, the company lost money but continued to grow. Passenger service was inaugurated.

Adding to the financial difficulties of the company was the cancelling of all air mail contracts. Mail delivery was turned over to the Army Air Force.

With the return of the mail operation, new air patterns were set up. North American formed a new corporation, Eastern Air Lines, Inc., to bid for routes.

Then, at request of General Motors Corp., which controlled Northern Aviation, Captain Eddie Rickenbacker was named general manager. His first move was to replace obsolete aircraft with new DC-2's and DC-3's.

World War II operations saw Eastern's Military Transport Division fly 60-million pounds of material and 125,000 passengers to the war theaters.

Since the war, Eastern has concentrated on improving service in its existing territory rather than serving new points.

On June 1, 1956, Eastern acquired the assets of Colonial Airlines. Acquisition of a fleet of piston-driven, pressurized airliners has followed this development.

Northwest Orient Airlines



S-43 let Northwest serve Duluth before airport was built

Northwest Orient Airlines began service in 1926 with two rented airplanes. These planes were used in air mail service between Minneapolis-St. Paul and Chicago.

In 1928 the line began a route expansion that changed it from a midwestern air mail carrier into an airline that carries over a million passengers yearly. From 1928 to 1933 the expansion was westward.

On June 1, 1945, Northwest Orient became the nation's fourth transcontinental airline when service was extended eastward to New York. Little more than a year later, the company was certificated to fly to the Far East and Alaska.

Northwest now holds certificates to serve 20,000 route miles. This includes several Chinese mainland cities to which service has been discontinued due to political considerations.

Pacific Northern Airlines, Inc.



Pacific Northern flies Lockheed Constellations to Alaska

Founded as Woodley Airways on April 10, 1932, Pacific Northern Airlines, Inc., is marking its Silver Anniversary this year. The first plane, which operated from Anchorage, Alaska, was a single-engine Travelaire.

Now the line operates a fleet of Lockheed Constellations, and Douglas DC-4s and DC-3s.

Cargo ton-miles have risen from 128, in 1932 to 3,364,354, in 1956. (This figure does not include mail.) Passenger miles have risen from 7763 to 92,099,000 in the same period.

Pan American-Grace Airways, Inc.



Panagra flies DC-7B combination service to South America

A 600-mile flight from a racetrack in Lima to a soccer field in Talara, Peru, in 1928 marked the beginning of Pan American-Grace Airways and scheduled commercial aviation on the West Coast of South America.

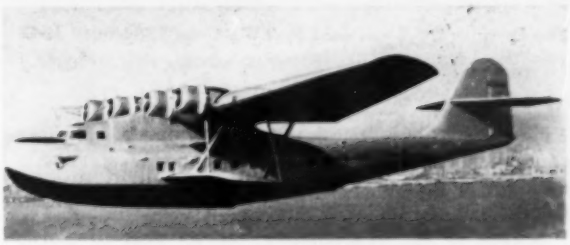
Today the company's certificate covers a 9,000-mile network of routes linking Panama, Colombia, Ecuador, Peru, Bolivia, Chile, and the Argentine with local services in Ecuador, Peru, and Bolivia. Under a through-flight contract with Pan American, Panagra planes fly into Miami.

Harold R. Harris, a young flyer dusting crops on the Peruvian coast, is credited by Panagra with the founding of the company. Harris enlisted the support of W. R. Grace and Company and Pan American. The new company began service as Peruvian Airways Corporation.

During World War II the Panagra airlanes were expanded to replace the operations of German-controlled companies in South America. In 1942, Panagra converted two of its planes into "flying boxcars" and inaugurated an all-cargo route from Canal Zone to Lima.

A pioneer in the transportation of air cargo, Panagra, as early as 1930, was hauling heavy machinery and oil drilling equipment over the Andes. To meet various emergencies, the company has airlifted tons of medical supplies and food to the stricken places and brought out the injured and sick.

Pan American World Airways System



Clipper of 1934, a Martin M-130, had 3200-mile range

A few years after it was founded in 1927, Pan American World Airways System's routes had spread over Latin America and spanned both the Atlantic and Pacific. This was a company which started with 90-route miles between Key West and Havana.

During this period of development, air cargo remained in the realm of small packages and emergency shipments.

During World War II Pan American operated "The Cannonball" service with tons of military supplies to India and China and airlifted material all over the globe for the armed forces. It became evident then that air cargo had a peacetime future.

Pan American's first all-cargo plane was operated in 1942, an S-42 flying boat that flew from Miami through the Caribbean and down to the Canal Zone on an irregular basis to carry vital goods during the submarine menace.

Pan American's Latin American Division now operates cargo flights on a wholly scheduled basis with 24 flights a week from Miami and New York using all-cargo DC-4s and DC-6As. It transports everything from horses to heavy industrial machinery and theater stage settings.

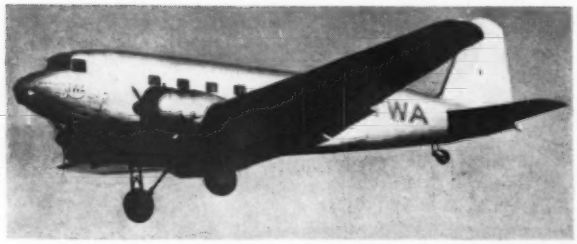
Trans World Airlines

Under provisions of the McNary Watres Bill of 1930, Postmaster General Walter F. Brown changed the face of the air routes map. The choice for a central transcontinental system were Western Air

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. . . Pioneer Airlines

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The Douglas DC-2 was used by TWA from 1934 until 1942



United's fleet of all-cargo planes includes five DC-6As

Express and TAT-Maddux. The joining of these companies into Transcontinental and Western Air ended a long series of mergers involving companies dating back to 1925.

Aware of the shortcomings of its fleet of Fords and Fokkers, TWA started on a quest for speed. One of the first answers was the low-wing Northrop mail plane. It cut the transcontinental flight to 24 hours. However, it didn't answer the passenger's craving for speed.

The plane that forebode the end of the "Tin Goose" was the DC-1, developed by Douglas Aircraft Co. The DC-2 (production model of the DC-1) and DC-3, workhorse of the airlines, were introduced to TWA passengers during its early years.

Cancellation of the air mail contracts in 1934 meant that TWA, like other lines, lost this business. However, under its original corporate form, it was ineligible to bid on new ones. Reorganization followed.

Concentrating on passenger and express revenues, TWA worked on the hindrances of "fear" and "fare." During this period the line conducted a high-altitude research program to permit flying over bad weather.

Initiated to the international airline field during World War II, TWA started overseas commercial service in 1946. Thus Transcontinental became Trans World Airlines.

United Air Lines

United Air Lines had its origin in Varney Air Lines, started by Walter T. Varney. Varney purchased six Swallow biplanes to fly mail over the 435-mile distance between Pasco, Wash., and Elko, Nev., via Boise. On April 6, 1926, scheduled flights began.

More than a dozen airlines began operation in the next two years. These included National Air Transport, Pacific Air Transport and Boeing Air Transport. These three and Varney joined as United Air Lines.

United has been quick to adopt technological advances in the past 30 years. It played an important role in development and use of practical two-way plane-to-ground voice radio, use of Hamilton Standard hydromatic full-feathering propellers, operation of a VHF network, use of flight analyzers, and operation of flying laboratories for flight research.

United began operating all-cargo flights in 1940, utilizing the cabins of passenger transports. In 1943 all-cargo planes were put into scheduled service.

United, with its Reserved Air Freight, has been a leader in permitting advanced booking of freight. RAF is offered on all planes, all route segments, and at all cities on the United system.

The system today consists of 80 cities on 14,000 miles of routes. In addition to coast-to-coast and border-to-border the system includes Hawaii.

Wien Alaska Airlines

On August 6, 1932, Wien Airways of Alaska, Inc., was formed to provide service out of Fairbanks. The name Wien was not new to Alaska skies. The Wien family had flown many pioneering flights over an eight-year period which ended in the formation of the new company. Nor was the company name new. The Wien brothers had used Wien Alaska as the name of a company formed in 1927 and sold in 1929.

Much of this experience in flying "firsts" and learning the operation of planes at low-temperatures aided the company as it started with charter operations in the territory.

Operation in an area where surface transportation is not highly developed has increased the need for air freight service. From the beginning, cargo was important.

This service has grown until Wien ranks tenth in total cargo ton miles. The 1956 total is 10,260,783. Other indications of the company's growth are its 275 employes, 6,000 miles of unduplicated routes, and its 35,075 passengers carried last year.

Aircraft presently operated includes three DC-3s, five C-46s, four Norsemen, three twin-Beechcraft C-18-S, two Cessna 170s, nine Cessna 180s, and two Cessna 195s. •

These Are the Newer Lines

U. S. airlines consist of more than the pioneers who launched air freight. In the newer lines are nationwide airlines, area feeder lines, all-cargo carriers

IMPORTANT in the growth of air freight have been the contributions of the lines founded since 1932.

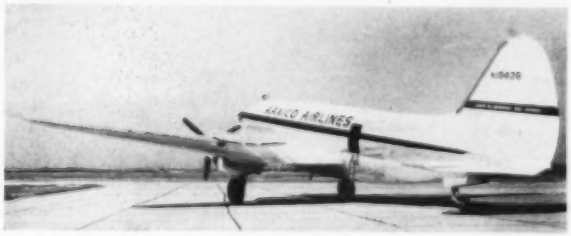
Many of these airways have experiences in cargo handling from their very beginning. Often these property shipping experiences resulted from national emergencies, the lack of other transportation in the areas served, or industrial emergencies.

Some of these airlines were founded in depression years while others are products of the post-war period. In either case, survival of the new lines in time of increased competition attests to the quality of their management and service.

Included in this group are the all-freight operators. These lines are founded on the belief that commercial aviation can make available to business the same type of cargo service as the military developed in World War II, the Berlin Airlift, and the Korean War.

Dividing pioneers and new lines in an industry as new as aviation is difficult. The pioneers are still new lines, and the new lines, in many cases, pioneers.

AAXICO Airlines



AAIXCO C-46s fly north-south, all-cargo schedules

Founded in 1945, AAXICO is certificated for scheduled all-cargo operations between terminal points of New York and New Orleans. AAXICO planes also serve Chicago, Detroit, New Orleans and intermediate points.

Scheduled all-cargo service, using C-46 airfreighters, was inaugurated in 1956 between New York and the South. Logair operations of AAXICO cover 15 western and midwestern states. Its logair activities are centered at San Antonio, Texas.

General headquarters of the company is at the Miami International Airport. It operates a combined fleet of 27 aircraft in all phases of its operations. It flies over 3,900,000 ton miles of freight per month.

Howard J. Korth, 37-year-old native of Saginaw, Mich., is the founder and president.

ASA International Airlines

Using three leased C-47s, ASA International Airlines started operations in October 1947. For a home base, the all-cargo carrier selected Pinellas County International Airport, St. Petersburg, Fla.

In its early days, the company's major business was hauling jeeps to Cuba and bringing tobacco and avocados to the States.

ASA was flying 60 flights a month to Cuba in 1948 when the CAB took action to limit the flights of nonscheduled lines. When ASA returned to service, Cuban flights were limited to eight per month. Under these conditions, the jeep contract went to another airline.

In 1949 the company added Central America to its growing service area. The company developed a lucrative source of income in airlifting livestock. At present, it claims to carry more export livestock southbound than any other air carrier.

ASA became a scheduled air freight carrier on October 5, 1952.

Today the company operates C-46s, which are substantially larger than the earlier planes operated by ASA. The newer planes have doors which have been widened to 11 ft to permit the loading of cars.

Allegheny Airlines

Founded in 1937 as All American Airways, Allegheny Airlines entered air freight service in 1956. This rounded out a service which already included passengers, mail, and express.

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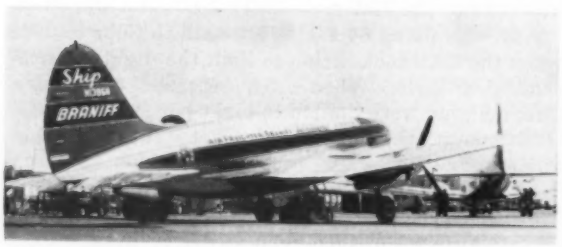
Allegheny Airlines carries air freight on all flights

Interesting in the early history of the company was the airway's use of in-flight pickup of mail and express. This pickup concept was originated by Richard C. Dupont and Dr. Lytle S. Adams, who founded All American.

The offload, carried in a protective container, was dropped from the plane a few seconds before a hook extended from the plane made the pickup. The hook engaged a rope suspended between poles. The load was attached to this rope.

Traffic and airport development in time erased the need for this pickup in Allegheny's territory. Ten years after the service was originated, Allegheny replaced it with regular passenger and cargo operations.

Braniff Airways, Inc.



Braniff C-46 makes daily trips Texas to Chicago

The Gulf States and Great Lakes area are joined by Braniff Airways, Inc. Home base for the company is Love Field, Dallas, Texas.

The line boards an average of a half million pounds of freight and express each month.

Special pick-up and delivery service is carried on through contracts with local truckers.

Bonanza Air Lines, Inc.

The Bonanza Air Lines, Inc., was organized in 1945 as a flight school and charter service by Edmund Converse. In 1946 it started scheduled operations as an intrastate carrier between Las Vegas and Reno.



Bonanza's first flight was between Reno and Las Vegas

This service, ending a shortage of direct transportation between the northern and southern areas of the state, grew rapidly.

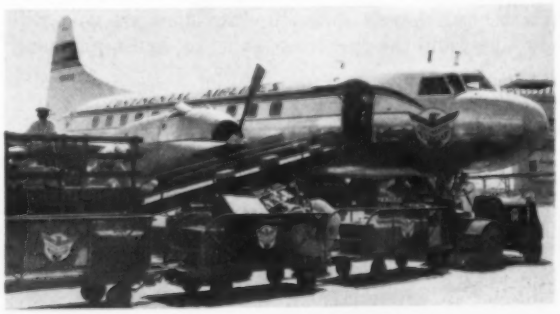
The company was certificated by the CAB in December 1949 as a local service carrier and granted a license to operate for three years. Following this development, flights were added to Phoenix, Ariz.

Later additions to Bonanza routes are Los Angeles, San Francisco, and Salt Lake City.

In January 1958 the company will take delivery of its first turbo-prop aircraft, the Fairchild Silver Dart.

Bonanza currently has DC-3s in operation. One is used exclusively for charter work.

Continental Air Lines



Continental serves 50 cities on 5000 route miles

As Varney Speed Lines (Southwest Division), Continental Air Lines began operations in July 1934 between El Paso, Texas, and Pueblo, Col. The company's equipment at that time consisted of three six-passenger, single-engine airplanes.

The route was pioneered by Walter T. Varney and Louis H. Mueller, present chairman of the Board of Continental.

In July 1937, the name was changed to Continental Air Lines. Two years later, the company was awarded a route extension to the east from Pueblo to Wichita. This doubled the total routes.

With subsequent additions of new routes and a 1954 consolidation with Pioneer Air Lines, the system has grown to over 5000 route miles serving 50 cities.

Continental has six Super Convair 340s, three Convair 440s, 16 DC-3s, and three DC-6Bs. One DC-6 is leased from American Airlines and one from United Air Lines in connection with interchange services.

Flying Tiger Line



Flying Tiger flew 67-million ton miles during 1956

Putting wartime experience to peacetime use was the idea of Bob Prescott, who had flown with Gen. Claire Chennault's original Flying Tigers, when he started to organize an all-freight airline at the end of World War II.

Just returned to civilian life, Prescott persuaded eleven of his Flying Tiger colleagues and five Los Angeles businessmen to chip in to form an air-freight line.

Most of the original capital of $226,000 was invested in 14 twin-engine war-surplus Conestoga cargo planes.

With Prescott as president, the Flying Tiger Line set up headquarters at Long Beach Municipal Airport in June 1945.

In 1946 the Tigers were awarded an Air Transport Command contract to re-supply the occupation forces in Japan. During 1947 the Tigers operated a record airlift for a private carrier—eight flights a day between San Francisco and Tokyo.

With the addition of 12 new Super-H Constellations in 1957, Flying Tigers claims to have the greatest all-cargo capacity of any airline. These giant planes have nearly the volume capacity of two 40-ft boxcars.

Meteor Air Transport

Meteor Air Transport, one of 500 independents to enter the field at the end of World War II, is one of about 30 companies to survive. The history of the company begins with three surplus C-47s. Today it uses C-46s and leads the independents in the amount of non-military contract freight carried.

The Teterboro, N. J., firm prides itself in its variety of services. In addition to charter and contract flying, it provides a testing service for plane manufacturers, operates a repair and service center for carrier and private planes, and conducts a fuel distribution business.

Mohawk Airlines



One of Mohawk's Convairs takes off at Oneida County

Mohawk Airlines, a local service carrier in the northeastern states, made its first flight on April 6, 1945. This was a Fairchild F-24 monoplane carrying three passengers from Ithaca, N. Y., to New York City.

The addition of planes and routes was climaxed in February 1948 when the CAB announced route awards with 12 cities in New York. A certificate of public convenience and necessity was awarded in June 1948.

Later extensions of service have taken Mohawk routes to Detroit, Mich., and Erie, Pa. The company's experience in handling property includes an emergency flight in 1953 of nearly a ton of inoculation equipment. This movement of cargo was from New York to Elmira. The largest mass inoculation in the history of polio—35,000 children in Steuben and Chemung Counties—followed.

National Airlines



Four DC-7s are among the fleet leaders of National

Founded 23 years ago, National Airlines had only one aircraft, a Ryan monoplane; one route, St. Petersburg to Daytona Beach, Fla.; and one pilot. Today it employs 4000 people and links 36 U. S. cities and Havana, Cuba.

An air mail contract for the 150-mile Florida route put the company in business. Since that time National's story is one of additional routes, services, and equipment.

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Today's fleet consists of four DC-7s, eight DC-6Bs, four DC-6s, six Convair 440s, twelve Convair 340s, and ten Lockheed Lodestars. These planes fly over 3400 unduplicated route miles.

Northeast Airlines



Northeast is expanding service with new DC-6Bs

Northeast Airlines, serving New England, was founded in 1933 with Paul F. Collins, Eugene Vidal, Amelia Earhart, and Sam Solomon among its founders.

Boston-Maine Airways, as it was then known, initiated its service in an area that included three states without air mail service. Its fleet consisted of two veteran Stinson tri-motored planes.

Boston and Maine and Maine Central Railroads put up most of the capital. Central Vermont Railroad, a rail line which later merged with the Boston and Maine, started a separate airline from Boston to Vermont and New Hampshire.

Passage of the Civil Aeronautics Act of 1938 meant that the railroads could no longer operate the airline.

The air carrier's name was changed to Northeast Airlines, Inc., in 1940, ending all identification with its former owner.

The Northwest equipment story is replacement of the Stinsons with Lockheed Electras in 1936, re-equipping the line with DC-3s in 1949, purchase of DC-4s in 1945, and fleet replacement with Convair Liners in 1949.

Piedmont Airlines

The history of Piedmont Aviation as an airline starts in 1944 when Thomas H. Davis applied to the CAB for several local feeder air routes in the southeast.

Before World War II, Piedmont's major source of income had been selling planes. Overhaul, maintenance, charter service, instruction, and rental had been part of the business. During World War II, extensive flight and ground training programs were carried on for the military. To continue employment for its large staff, Piedmont became a carrier.

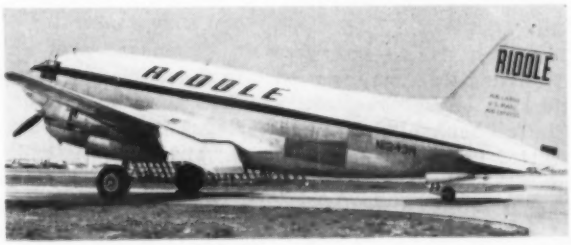


Piedmont now carries 35,000 passengers monthly

Since the inauguration of service in 1948, the line has continued a steady growth.

Present routes touch seven states. Express and freight tonnage has risen from 103,543 in 1949, first full year of operations, to 297,961 for 1956. Revenue passenger miles for the past year are 76,483,089.

Riddle Airlines



Riddle has modified its C-46s to be C-46Rs

Riddle Airlines, north-south all-cargo scheduled carrier, was founded in 1947 by its present president, John Paul Riddle. Its headquarters is at Miami International Airport.

The 1947 service was between New York, Miami, and San Juan. In 1956, permission was given to extend service to 13 additional cities on the East Coast and in the Midwest.

Thirty-two C-46s make up the bulk of the Riddle fleet. In addition there are four DC-4s and one DC-6A.

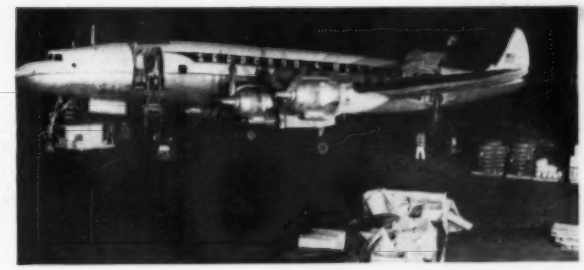
The company has just completed a program to improve the C-46. The improved C-46R flies faster and carries more payload.

In addition to freight routes, Riddle operates under a three-year contract to fly military cargo between military bases. This is part of the Air Force's Logair program.

Seaboard & Western Airlines, Inc.

The Geneva Airtrader, first flight of Seaboard & Western Airlines, Inc., departed from New York on May 10, 1947, eight months after the company was formed. The plane carried general merchandise for Switzerland and Italy.

From one DC-4 in 1947, the company grew to a fleet of nine in 1952. Today it operates a fleet of 10 Super Constellations and three DC-4s.



Seaboard Super Constellations connect U. S., Europe

In its 10 years as an all-cargo airline, Seaboard has logged 48,247,700 revenue miles and made over 8700 ocean crossings.

The line presently operates six scheduled all-cargo flights weekly in both directions across the Atlantic. The company operates from New York and serves Gander, Shannon, London, Glasgow, Amsterdam, Brussels, Hamburg, Frankfurt, Dusseldorf, Stuttgart, Nuremberg, Munich, Paris, Geneva, and Zurich.

Slick Airways



Slick's all-cargo service reaches 38 American cities

An all-cargo airline was the idea of Earl F. Slick and Samuel C. Dunlap, 3rd, when in 1944 they were pilots with the Air Transport Command.

The idea became a reality when Slick Airways was incorporated on January 4, 1946. Preparation for the first flight had not waited for this event. The previous November, Slick had purchased nine C-46 Curtiss Commandos which had been declared surplus by the Reconstruction Finance Corporation.

On March 4, the first flight departed from Alamo Airport, San Antonio, destined for Chicago.

One of the first steps after incorporation was filing with the CAB for a certificate of public convenience and necessity. This application was consolidated with other applications in the Air Freight Case. On April 29, 1949, the Board issued a tentative decision under which Slick received a five-year certificate to serve 54 large freight producing centers.

To meet rate cuts made by combination carriers in the early days of all-freight, Slick, in 1948 added a new source of income—a Supply and Service Division was formed.

Fifty planes were modified for the Chinese Air Force, 83 for the U. S. Air Force, and others were altered for private businesses by this Division.

In 1953 and 1954 it appeared that Slick and another transcontinental air freight line, Flying Tiger, would merge. The move was intended to produce economies in operation, and rapid growth. However, conditions of approval in the CAB order permitting the merger were too costly.

Earl Slick has remained active in the company. Today he is chairman of the executive committee of the Board of Directors. Robert J. Smith became the president of Slick in May 1956.

TPA Aloha Airline



Aloha's Douglas DC-3s feature panoramic windows

TPA Aloha Airline started service in the Hawaiian Islands 11 years ago. The newly formed company had 14 employes and one flight daily to each major island.

Formed under the leadership of President Ruddy F. Tongg, the company first provided charter service. It received its temporary certificate as a scheduled carrier in 1949. President Eisenhower signed the permanent certificate on July 20, 1956.

Today TPA Aloha employs 270 persons and operates 32 flights a day. Its maintenance department, in addition to repairing company planes, does contract work for the U. S. Air Force.

Aloha's Douglas DC3s were glamorized last year with four 5-ft wide windows, six 17 x 17-in. windows, and two 32 x 17-in. windows. This additional window area and low altitude flying emphasize the scenic beauty of its routes.

Trans-Canada Air Lines

Trans-Canada Air Lines, a publicly-owned company, was incorporated in April 1937. It was formed to co-ordinate air transport across Canada and to provide for international air service.

Prior to 1937 there had been much pioneering activity in the air in Canada, but nothing of a transcontinental design had developed. Schedule flights were limited to some on the Pacific Coast into the Northwest Territories and Yukon, along the north shores of the St. Lawrence and through the Maritimes.

Late in 1938, after extensive training over the Rockies and on night operations, the company was flying airmail and express between Montreal and

(*Please Turn Page*)

. . . the New Lines

(Continued from Preceding Page)



Super Constellations fly non-stop across Canada

Vancouver. On April 1, 1939, scheduled passenger service was inaugurated between the same cities.

In 1943, TCA first spanned the Atlantic. At the request of the government, trans-Atlantic service was established to provide for the rapid transport of passengers, mail and cargo.

On May 2, 1955, TCA introduced scheduled all-freighter service between Montreal and Vancouver. The service directly serves Montreal, Toronto, Winnipeg, Edmonton, Calgary, and Vancouver and operates five nights a week. Four converted North Star airliners are used.

One of the largest international commercial air carriers, Trans-Canada Air Lines serves Canada, the United States, the Caribbean area, the United Kingdom, and Europe.

Trans-Texas Airways



Trans-Texas is modernizing its fleet of 20 DC-3s

The story of Trans-Texas Airways begins with two DC-3s on October 11, 1947. The new line's service was between Houston and Victoria and San Antonio with flights also to Dallas, Fort Worth, Brownwood, and San Angelo.

The airline was the outgrowth of Aviation Enterprises, Inc., a general aviation business headed by R. E. McKaughan. During World War II it carried on a training program for AAF-WASPs

Today the company, with main headquarters in Houston, maintains a fleet of 20 Douglas DC-3 Starliners.

Besides passengers, it carries a variety of cargo—Texas okra bound for Chicago or oil field replacement parts enroute to Saudi Arabia.

TTA planes serve 42 airports and, in 1956, flew 220,613 passengers. Its routes, in the four-state Texas-Louisiana-Arkansas-Tennessee area, cover more than 4000 air miles.

West Coast Airlines



West Coast flights connect with eight other lines

West Coast Airlines, a local service line in the Northwest, inaugurated service December 5, 1946. Headquarters were established in Seattle.

Serving 44 cities along a 2200-mile route in Washington, Oregon, and Idaho Trail, the firm this July passed the one and one-half million mark in passenger service.

However, all of the company's development has not been in passenger service. In March 1950, the line brought air freight service to many Northwest cities for the first time.

Of the 39 airports of Washington, Oregon, and Idaho listed in the Official Airline Guide as having scheduled service, WCA serves 34.

West Coast Airlines announced in April that it will purchase at least six of America's first twin propjet transports, the Fairchild F-27.•

Air Freight Directories

Airlines described in this section include most of the major U. S. certificated air carriers. Brief sketches of major overseas air carriers serving the United States are presented on the three following pages.

A complete directory of all U. S. certificated and supplemental air carriers appears on Page 79 in this issue. Listings include company names, addresses, and lists of equipment.

A complete directory of air express-air freight forwarders registered with the CAB appears on Page 67 in this issue.



KLM started service between London and Amsterdam in 1920. The Airline provided its passengers with a leather coat, flying helmet, gloves, goggles, hot-water bottle for winter trips

Wings Across the Sea

SPEED, air freight's chief advantage over other forms of transportation, is realized most fully when distances are long.

Therefore, air cargo has risen to a position of importance in international aviation. Airways, unbroken, as surface routes are, by oceans and mountains, connect interior cities of each continent with remote cities on the others.

Traveling these long distances are the planes of many nations. Aircraft of U. S. companies are joined in serving American cities by planes of distant lands.

These are some of the airlines of other nations flying international and intercontinental routes.

Air France



Cargo is loaded on Air France Caravelle jet at Orly

A new course of development was set for French commercial aviation on May 17, 1933, with the merger of Air Orient, Air Union, and the General Aero-Transport Company under the name of Air France.

One year later the new company inaugurated service across the South Atlantic, a milestone in aviation.

During World War II, Air France, as a commercial airline, was virtually obliterated. With the end of the war in Europe in 1945, company officials began revitalizing the line.

Today Air France's 177,000 miles of airways encompass every continent.

Among the freight firsts of Air France is jet cargo service. This was established between Paris and Algiers in June 1956.

Air-India International

On August 1, 1953, the airlines of India were nationalized by Act of Parliament.

Under this action, two state corporations were created, one to operate all services within India and to adjacent countries, and the other to operate long range international services.

Air-India International emerged as the long-distance airline. J. R. D. Tata, one of India's pioneers in airline operations, became chairman.

It was the joint efforts of Nevill Vintcent, a young Englishman who had flown to India in 1929 to settle, and the first Indian to earn an A-license, J. R. D. Tata, which started Indian airline history.

On Oct. 15, 1932, the first flight took off from Karachi carrying India's first air mail.

British European Airways

Started as an off-shoot of the British Overseas Airways Corporation, British European Airways began operations August 1, 1946. Using borrowed

(*Please Turn Page*)

. . . Across the Sea

(Continued from Preceding Page)



British European Airways flies largest Viscount fleet

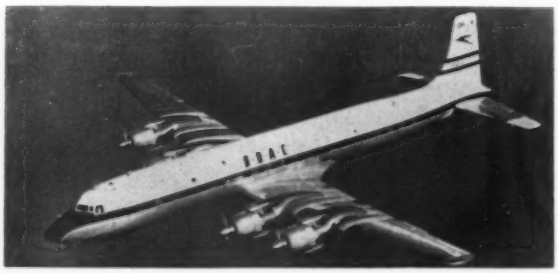
Dakotas, the line introduced new routes throughout Europe, the United Kingdom, and North Africa.

Later came experiment in the field of rotary wing aircraft. This resulted in the introduction in 1950 of a scheduled passenger helicopter service.

Another achievement of BEA was the introduction, in April 1953, of the first passenger service using the prop-jet Vickers Viscount.

During the first ten years of its history, BEA's passengers carried increased from 266,000 to 2,330,000.

British Overseas Airways Corp.



BOAC DC-7C carries passengers, cargo across Atlantic

Four small private carriers were amalgamated in 1924 to form Imperial Airways. In 1939, the British Overseas Airways Act created BOAC as the national overseas airline of Great Britain.

Imperial established most of BOAC's present 85,539 mile network of unduplicated air routes throughout six continents.

Imperial Airways and British Airways were joined as British Overseas Corporation on April 1, 1940. The company's entire facilities were then placed at disposal of the government for the duration of the war.

On July 1, 1946, BOAC resumed its commercial trans-Atlantic service using Constellations. Flights were increased until, at present, BOAC offers up to 63 scheduled flights a week on the North Atlantic routes.

Iberia Air Lines of Spain

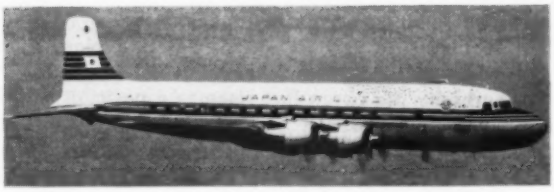
The Iberia Air Lines of Spain was founded in 1940 to restore the domestic and international air services disrupted by the Spanish Civil War.

After World War II, Iberia entered major expansion of its domestic routes and began new flights to London and Rome.

Shortly after, trans-Atlantic service was established between Madrid and Buenos Aires, Caracas, Havana, and San Juan, Puerto Rico.

The latest advance for Spain's national flag carrier came in 1954 when Iberia started non-stop flights between New York and Madrid.

Japan Air Lines



Japan Air Lines uses DC-6Bs for international flights

The Japan Air Lines Company was established in December 1938 by the merging of Japan Air Transport Company and International Air Lines Company.

Interrupted by World War II, the company was re-established in August 1951. In October of the same year, domestic service was started in Japan.

A reorganization in 1953 opened the line to international routes.

The company entered U. S. aviation in February 1954 with two flights a week between Tokyo and San Francisco via Honolulu and Wake.

This year Japan Air Lines, whose routes now extend from Bangkok to San Francisco, will place the first of four new DC-7Cs in service. Flying time between San Francisco and Tokyo will drop from 25 to 17 hours.

KLM Royal Dutch Airlines

Ten years ago June 7, KLM Royal Dutch Airlines inaugurated a trans-Atlantic freight service from Amsterdam to New York. Today KLM claims second place among the North Atlantic air freight carriers.

All-cargo flights were started in 1947 because freight capacity of passenger aircraft was too small to cope with demand.

While air freight has played an important part in the development of KLM, it is not the whole story



Old KLM Fokker's fuel supply would be lost in airliner

and 1947 is not the beginning of the airline. On October 7, 1919, the Koninklijke Luchtvaartmaatschappij (KLM) was founded at The Hague.

The company started with trial flights using aircraft chartered from other companies. On May 17, 1920, KLM inaugurated a trial service from Amsterdam to London.

World War II forced the line to suspend its domestic services and most of its European network. Foreign service and trans-Atlantic service continued. In 1945 KLM's network in Central and South America covered 5761 route miles. From 1945 to 1956 the company has carried on a development program that has taken it to every continent.

Qantas Empire Airways

QANTAS—Queensland and Northern Territory Aerial Services Limited—was registered on November 16, 1920, with a fleet of two war-type biplanes and a staff of three men.

The history begins at the end of World War I when the Australian Government offered a prize for the first Australian aviators to fly from England to their homeland.

Two flyers took part in the adventure by carrying out part of the official ground survey. Their travel through a land with few roads or railways and their knowledge of flying inspired founding of the line.

The first regular service of Qantas was between two Queensland towns, Charleville and Cloncurry, a distance of 577 miles.

Swissair

Swissair, the airline of Switzerland, was formed in 1931 by the merger of two other airlines—Ad Astra, established in 1919, and Balair, 1926.

At first its fleet consisted of only 11 small aircraft flown by nine pilots and 12 other crew members.

Today, Swissair has a fleet of 25 planes and flying personnel of 500. It serves 33 cities in 22 countries on four continents. Swissair's network of 34,176



Cargo is loaded on Swissair DC-6B at Zurich airport

miles covers all of Europe, the North and South Atlantic, and the Near and Middle East.

In 1932 Swissair created a sensation when it introduced the Lockheed Orion, the first American plane operated by a European airline.

During World War II the company suspended operations, starting up at the war's end with Convairs and Douglas airliners. Since 1949, Swissair has operated regular trans-Atlantic flights between New York and Europe.

Varig



Old Junkers F-13 saw service with Varig in Brazil

Varig's first regular line began operation in 1927. It connected Porto Alegre to Pelotas and Rio Grande. From its founding through 1942, its expansion was domestic, routes spreading through Brazil.

In 1942 the international role of Varig began. Montevideo was the first addition to Varig's service. This remained the only international service for several years as Varig turned its attention to domestic lines to the north. In 1946 Rio de Janeiro was added.

International expansion in 1952 took Varig to Buenos Aires and in 1955 the line started service to the United States.

Routes which were once 140 miles long today the United States.•



Four Civil Aviation Administration employes operate an experimental Sky-a-tron, a bright enlargement of a radar screen on which planes are followed in the air

U. S. Civil Aviation

TAMING the "wild blue yonder" has been the assignment of two government agencies, the Civil Aeronautics Board and the Civil Aviation Administration.

The former has guided the economic development of air transportation while the latter is the builder and operator of our aerial highways. Both share in the responsibility for safe skies.

Development of these two agencies in 1940 was not the first attempt by the federal government to provide regulation for the growing industry. The U. S. entered the civil aviation picture with passage of the Air Commerce Act of 1926. This bill, designed to encourage and control civil aviation, created the office of assistant secretary of commerce for aeronautics. No provision was made for rate-fixing.

This condition did not go long without attention. In 1929 Sen. Bratton, of New Mexico, introduced a bill to put aviation under the Interstate Commerce Commission. The move failed.

The Civil Aeronautics Act of 1938 created the Civil Aeronautics Authority and the Air Safety Board. These groups superseded the Aeronautics Branch of the Department of Commerce.

Less than two years later the Authority became the Civil Aeronautics Board. The administrator, formerly a member of the Authority, and some of the Authority's functions were moved to the Department of Commerce. The Air Safety Board was abolished, its functions transferred to the CAB.

Since this reorganization, the CAB has regulated the economic aspects of air carrier operation, set safety standards, and investigated aircraft accidents.

Its regulatory function includes operating rights and rates for both domestic and international air carrier service. Regulation of accounts, records, reports, mergers, loans, competition, and interlocking relationships are also under jurisdiction of the Board. With the advice of the Secretary of State, it participates in the negotiation of air routes and services involving foreign governments.

In maintaining safety standards, the CAB has the power to suspend and revoke safety certificates after conducting hearings. It also acts on CAA complaints of violations of air regulations.

Under its accident investigation authority it holds hearings to de-



Traffic control towers at all U. S. airports operate under federal standards

Civil Aeronautics Board guides economic development of air transportation while Civil Aviation Administration operates safe aerial highways for movement of commercial airplanes

By C. M. Thompson, *DA Editorial Staff*

Gets Regulation

termine facts and causes. Following this the Board recommends to the administrator action that will prevent similar accidents.

The Civil Aeronautics Administration has been assigned the duties of enforcing safety standards, developing an airport system, improving the air navigation system, collecting and disseminating information on civil aeronautics, and promoting air commerce abroad.

The 25th anniversary of air freight finds the CAA busy on expansion of the airways and airports to meet demands of increasing air traffic.

While waiting for the delivery of the first units under a nine-million-dollar contract to provide 23 long-range radar units, the CAA is controlling increasing traffic with its existing system. The over-all system is made up of three major components—the air traffic controls, navigation facilities, and pilot-to-ground communications. The CAA operates 31 air route traffic control centers, 182 airport traffic control towers, 39 airport surveillance radars, 422 VHF radio-ranges, and 159 instrument landing systems.

These facilities are tied together by 75,000 miles of full-time telephone lines and more than 100,000 miles of teletypewriter lines. The air route traffic control centers are the "nerve centers" responsible for the control and separation of route traffic under instrument flight rules conditions. The control towers are responsible for the traffic within the immediate terminal area. Along the airways, CAA operates 360 air traffic communications stations that provide air-ground communications services to an en route aircraft.

Electronic Devices

The navigational aids include many types of electronic and visual devices such as the very high frequency radio ranges (VOR), distance measuring equipment, the four-course low and medium frequency radio ranges, the instrument landing systems, and high intensity approach lights. To handle the heavy traffic which has developed on the nation's airways, CAA has developed the Federal Airway Plan. One phase of this is the purchase of radar to cover most of the country.

Radar, it is expected, will be the biggest single factor in solving our air traffic control problems in the foreseeable future.

Because of the increase in bad weather flying, airport runway lights are to be augmented by lighting in the approach area. Obsolete and short systems will be replaced with standard approach lighting at 19 locations this year and future plans call for standard lighting at all ILS locations.

The plan also calls for Air Traffic Coordinating Equipment. This includes "data link," a means of relaying intelligence between ground and air in coded messages which require less communication time.

The CAA is also studying automation in traffic control. All equipment in the plan is capable of being used in connection with automatic devices now under development.

Although the Federal Airway Plan will do much to increase the capacity and efficiency of the air traffic control system, it will not correct certain basic deficiencies of the system. Therefore, the CAA has devised a forward looking plan for the research and development required to correct these deficiencies. This work is carried on at the Airways Operation Evaluation Center at Indianapolis. •

A Statistical Look at the First 25 Years

Steady growth has characterized air freight's first 25 years. In 1932 the scheduled domestic airlines flew 289,512 ton miles. In 1956 these lines, plus all-cargo lines and international lines, logged 504.1 million ton miles

By Marcus Ainsworth
DA Statistical Editor

AIR FREIGHT'S amazing 25-year growth is reflected in the industry's ton-mile figures. Domestic U. S. scheduled airlines, international lines, and all-cargo airlines, in 1956 flew a total of 504.1 million ton-miles.

Domestic scheduled lines accounted for 247.3 million ton-miles of this total. U. S. international lines flew 115.2 cargo ton-miles last year, and all-cargo carriers logged 141.7 million ton-miles.

The rapid rate of expansion is best noted in a comparison between 1956 domestic figures and 1932 figures, as shown in the chart on the opposite page. In 1932, the first year that a unified air freight service was offered by U. S. airlines, a total of 289,512 ton-miles were flown, compared to the 247.3 figure of last year.

The above data are exclusive of U. S. mail tonnage, excess baggage, and cargo carried by military aircraft in military service.

Historical Record of Air Cargo Carried by U. S. Scheduled Domestic Airlines Compiled from the Records of CAB and CAA

Year	Ton-Miles	Year	Ton-Miles	Year	Ton-Miles
1926	995	1937	2,162,488	1948	101,376,560
1927	12,841	1938	2,182,420	1949	123,001,652
1928	58,913	1939	2,713,099	1950	151,351,080
1929	69,898	1940	3,476,224	1951	143,624,865
1930	100,666	1941	5,258,551	1952	160,825,972
1931	220,657	1942	11,900,832	1953	177,928,000
1932	289,512	1943	15,636,811	1954	188,271,000
1933	422,860	1944	16,991,598	1955	228,071,000
1934	597,293	1945	22,196,852	1956	247,252,000
1935	1,089,802	1946	38,610,717		
1936	1,860,809	1947	64,678,213		

The Early Years

General Air Express issued Tariff No. 1 in 1932. That year air express and freight amounted to 1,033,970 lb, or approximately 517 tons. This total represented 289,512 ton-miles. Thirty-two operators with 456 aircraft were involved. Today the number of operators remains approximately the same, but aircraft in service have been increased to well over 1200. Today's aircraft also incorporate greatly increased load capacity and an ability to fly much greater distances at vastly increased speeds.

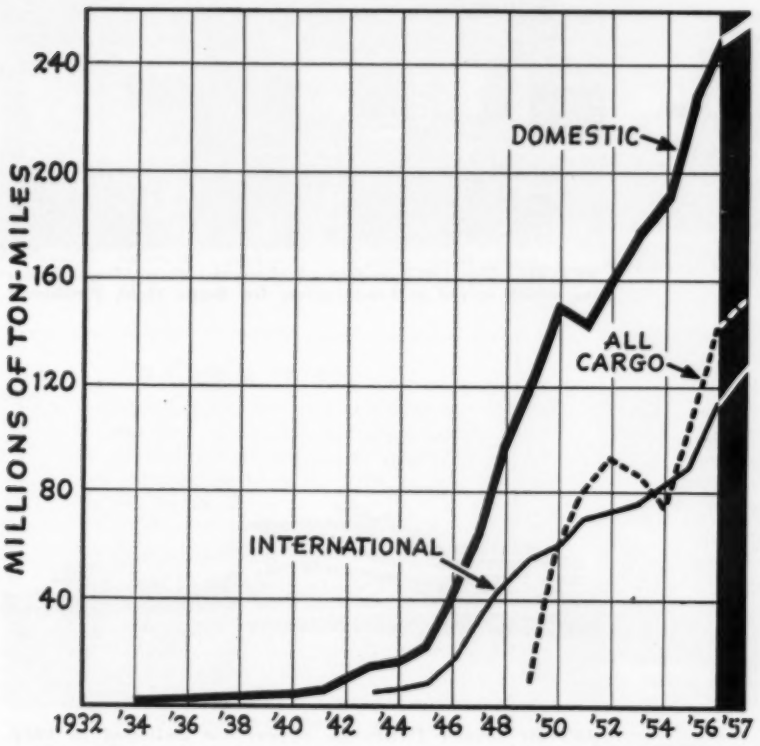
Our earliest records are for 1926. Only 995 air express (the forerunner of air freight) ton-miles were flown during that year. By 1930 the first 100,000 ton-miles were carried by domestic air lines. The first million air freight ton-miles was reached in 1935, and by 1940 U. S. domestic air lines were flying approximately 3.5 million ton-miles of cargo.

Expansion of express and freight carried since then has been meteoric. Express and freight ton-miles flown by domestic lines had reached 151 million in 1950. By the end of last year a further gain of 96 million ton-miles was recorded. This brought the total for 1956 up to 247,252,000 ton-miles. Table No. 1 gives actual data for these years.

Since the end of World War II, express and freight carried by U. S. international lines in their scheduled operations has increased approximately 670 per cent. The increase was from 15.1 million cargo ton-miles in 1946 to 115.2 ton-miles in 1956.

In 1946 there were nine international operators with 147 aircraft in service. Today there are 15 operators with the same number of aircraft, but by 1955 their route mileage had increased from

Growth of Air Cargo by Scheduled Domestic, International, and All-Cargo Airlines



Above figures are exclusive of mail, excess baggage, and military tonnage flown in military planes. The figures shown for 1957 are projected

66,419 to 114,005, and their average speed from 166 mph to 245.4 mph. Data on speed and route mileage are not yet available for 1956.

The record of ton-miles flown by international lines follows:

Year	Ton-Miles	Year	Ton-Miles
1943	5,088,325	1950	60,562,568
1944	6,207,137	1951	71,091,445
1945	8,717,511	1952	72,673,869
1946	15,090,468	1953	74,801,000
1947	32,869,413	1954	82,332,000
1948	45,592,801	1955	90,969,000
1949	56,158,544	1956	115,170,000

All-Cargo Airlines

Certificated operations of all-cargo lines came into being in the last quarter of 1949. At that time these operators had 39 aircraft in service. In 1955 there were 71 airplanes in service. They flew 107,944,000 cargo ton-miles. In 1956 this was increased by slightly over 31 per cent to 141,686,000 ton-miles.

The following table shows ton-miles carried by all-cargo carriers from 1947 to 1956:

Year	Ton-Miles	Year	Ton-Miles
1949*	10,541,000*	1953	88,811,000
1950	58,420,000	1954	76,653,000
1951	80,851,000	1955	107,944,000
1952	92,494,000	1956	141,686,000

*October through December only, since certificated operations began in the fourth quarter.

Non-Scheduled Lines

In addition to the air cargo flown in scheduled operations considerable freight and express is transported in non-scheduled operations. The great bulk of non-scheduled traffic is confined to all-cargo carriers and large irregular carriers. Cargo ton-miles flown by domestic trunk lines and local service lines are negligible today. In 1947, however, these lines accounted for over 64 million ton-miles.

The amount of air cargo ton-miles flown on non-scheduled operations does not follow the trend established by the scheduled carriers, who show substantial increases each year. The non-scheduled lines have no set pattern, but seem to fluctuate from year to year. The table below, however, shows that the general trend is downward on the air cargo ton-miles flown by non-scheduled operators.

Year	Ton-Miles	Year	Ton-Miles
1947	64,032,887	1952	19,134,317
1948	50,105,557	1953	25,430,722
1949	41,664,697	1954	35,604,920
1950	19,900,883	1955	30,404,750
1951	22,030,721		

Operating Revenue

Operating revenues from freight and express flown by scheduled U. S. domestic, international, and all-cargo lines during 1956 amounted to $126,049,000. This compared with $114,220,000 during 1955, an increase of approximately 11 per cent.

During 1956 scheduled domestic lines accounted for $63,997,000 or 51 per cent of the air cargo operating revenue, as against $62,102,000 or 54 per cent in 1955. International lines' share of the freight and express revenue in 1956 was $38,244,000 or 30 per cent, as compared with $33,394,000 or 29 per cent in 1955. All-cargo lines increased their revenue from $18,639,000 in 1955 to $23,760,000 in 1956 and at the same time gained from 16 to 19 per cent respectively of total revenue from freight and express. A negligible amount of revenue ($49,000 for 1956 and $85,000 for 1955) was received by other lines.

Such is the record to date. What the future holds for air carriers of freight and express is hard to predict. However, from all indications we can fully expect air cargo transportation to maintain the same rapid growth of the past 25 years. At least one large international line predicts a 20 to 25 per cent increase in 1957, and a 100 per cent increase by 1960.

New equipment, designed primarily for the transporting of air cargo, is being purchased by the carriers. New routes and services are being awarded by CAB. This opens new areas for air freight and express.•

Our Airports Look to Tomorrow

THE PAST 12 years have been busy ones for this country's leading airports. Just keeping pace with progress in other phases of aviation has been a major project in itself.

The new look in our national airport picture has been dictated by the larger and faster planes now in service, increases in the number of carriers and aircraft, and the amazing increase in cargo and passenger miles.

Improvements at some of the leading airports are illustrated on these pages. There are others, of course.

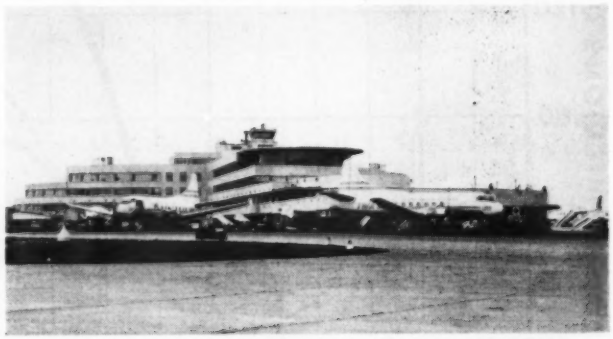
At the close of 1956 the CAA listed 155 air shipping centers or "hubs." Of this number, 22 are called "large hubs." Another 39 are "medium," and 94 are listed as "small."

In 1956 all airports accounted for 3,094,075 departures. Some 554,629.8 tons of cargo and mail, and almost 41 million passengers were carried. This represents an approximate 2½ to 1 increase over 1948, the first year in which figures were compiled.

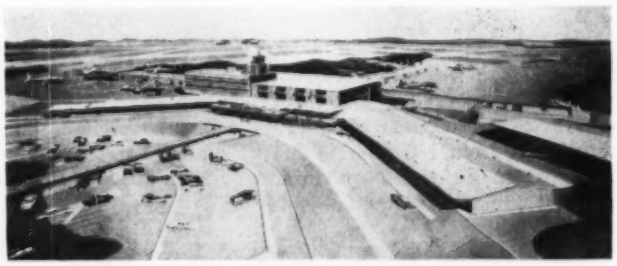
Indications are that this phenomenal growth will continue for at least another 10 years. If it does, the airports will be ready. •



BEFORE: This 1927 photograph shows the flimsy, frame building which served as headquarters for Bettis Field, Pittsburgh



AFTER: Greater Pittsburgh Airport was dedicated in 1952, has facilities for simultaneous loading of 16 large planes

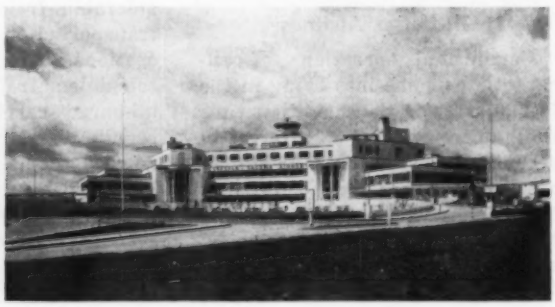


Love Field, Dallas, Texas. Last year Dallas logged 54,270 flights, involving 15,670.8 tons of air mail and air freight

Philadelphia International Airport had 24.1 per cent cargo tonnage gain in 1956 over 1955, handling 18,789 tons



Seattle-Tacoma International Airport is served by seven major lines, $3.5 million improvement program has started





Washington National Airport is entirely government owned, operated by CAA, handled 28,272,568 lb of freight last year



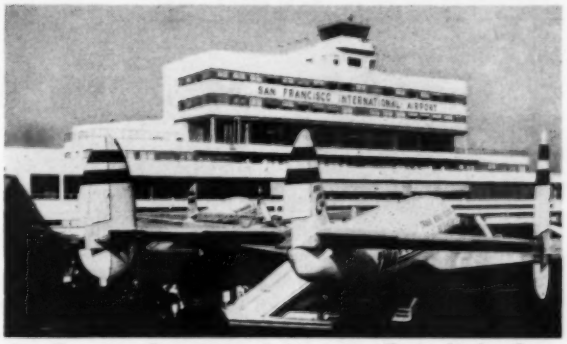
La Guardia Airport, operated by the Port of New York Authority, has announced a $32-million redevelopment

To Coin a Phrase . . .

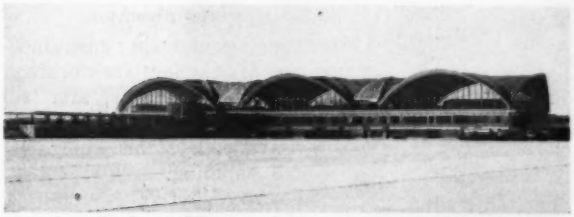
There seems to be some confusion as to who was responsible, but there can be no doubt that the word "airport" was invented on May 10, 1919, in Atlantic City, N. J.

On that date this famous resort town's original flying field was opened. It is said that Dr. Henry Woodhouse, one of the owners of the field, first referred to it as the Atlantic City Airport.

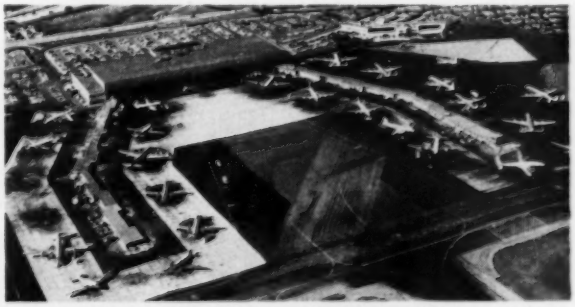
Another version credits the late William B. Dill with coining the term. Mr. Dill was then editor of the Atlantic City Press.



San Francisco International Airport, calls itself the Gateway to the World, was dedicated in 1954, cost $14 million



Lambert-St. Louis Municipal Airport, in St. Louis. In 1956 6,688 tons of mail and cargo were flown out of St. Louis



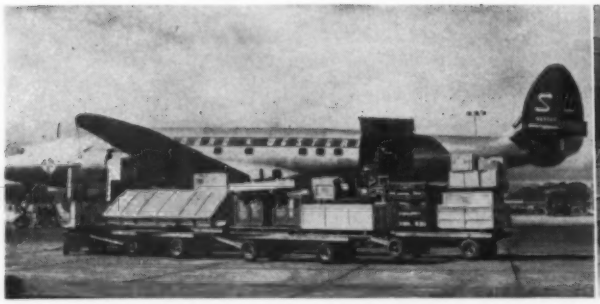
Another Port of New York Authority installation, Newark Airport, has 200 ft wide by 7,000 ft long instrument runway

Boston's Logan Airport also has separate cargo facilities. Last year Boston accounted for over 42,400 departures



New York International Airport boasts a $2 million operations-cargo building and two prefabricated cargo buildings





Tractor-trailer train loading of industrial equipment aboard a Seaboard & Western Airlines Super Constellation



Tractor-trailer loading American Airlines ship. This equipment generally is used with fork trucks or conveyors

Mechanized Handling

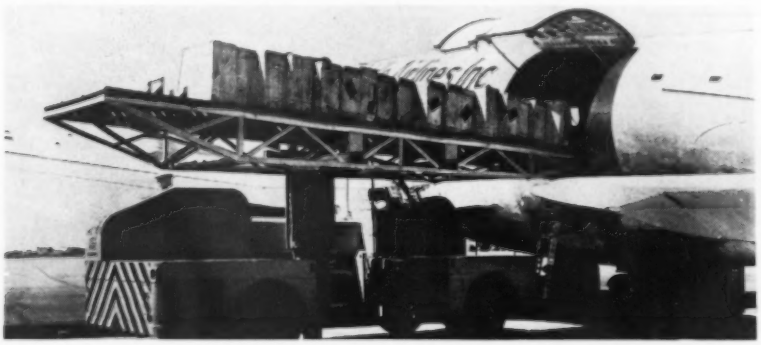
Key to Faster Turn-Around

EFFICIENT air cargo operation depends, to a large extent, on speed of turn-around. The transport aircraft is the most expensive per ton carrier of all carriers. It cannot earn its pay on the ground.

Industry experts admit that ground handling has not kept pace with handling progress in other forms of physical distribution. Elsewhere in this issue (Page 70) Brigadier General Raymond L. Winn says, "Ground handling continues to create 'choke points' . . . . . we cannot shackle the speed and flexibility of air to antiquated ground handling."

Progress is being made, however. Pictured on these pages are handling methods commonly employed in air freight operations. Some are standard materials handling tools adapted to air cargo use. Others were designed exclusively for the air freight field. Both represent steps in the right direction.

Handling equipment manufacturers and air carriers are working on the problem. Their aim is adoption of the unit-load principle and a so-called systems approach to ground handling.

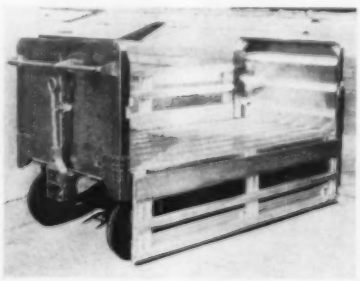


Side loader lifts preloaded, roller-equipped master pallet to the cargo door of a Riddle Airlines plane. Cargo is carried from pallet directly into plane

New Lewis-Shepard airport cart has 1000-lb capacity, a 36x96-in. deck



Magnesium Co. of America has developed cargo truck with hinged sides

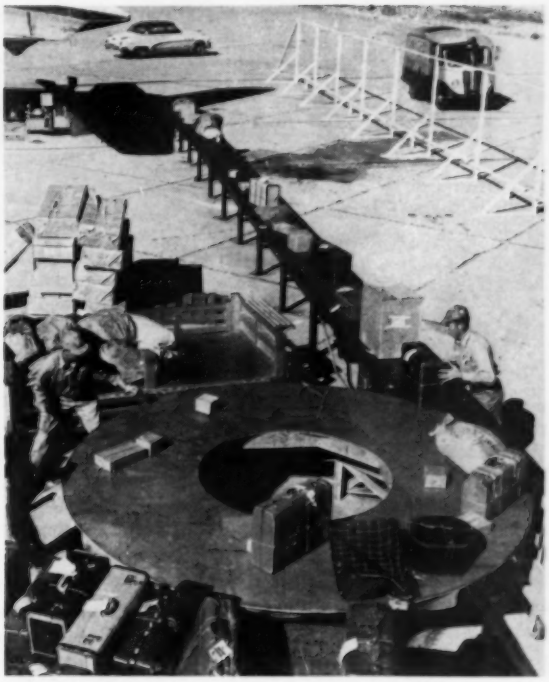


Fork truck permits movement of cargo from surface vehicle direct to plane





Portable belt conveyor, probably the most widely used of ail ground handling equipment, loading Continental plane



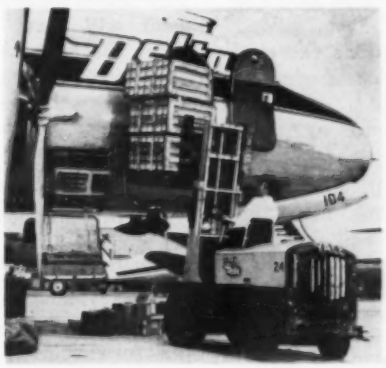
Conveyor belt carries mail, baggage, and cargo to lazy Susan sorting table in United Airlines new air dock test



Slick Airways ship is loaded by jack-type truck

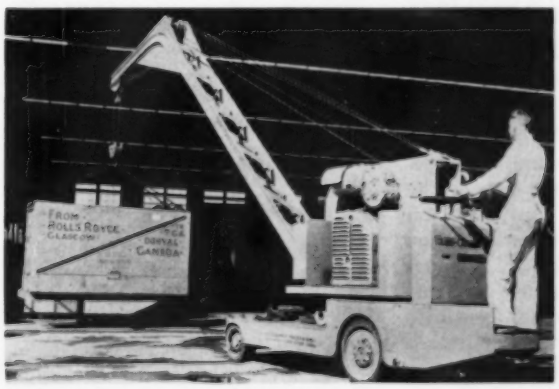


Loading and unloading an American Airlines DC-6A air-freighter at Love Field, Dallas, with modern equipment



Heavy-duty fork truck loading Delta air freighter

Mobile crane truck moving crated Rolls Royce engine from flight apron to warehouse in Trans-Canada AL operation



Fork truck loading Flying Tiger plane with emergency steel for use in West Coast guided missile program



Air Forwarders Stress Added

Consolidation, expediting, and paper work are only a part of today's

A WIDE variety of services—from advice on packing to final delivery at a distant city—are available to shippers through air freight forwarders. These services include consolidation of shipments to achieve a lower rate, expediting of cargo, pickup and delivery, preparation of forms, and packaging.

Selecting Forwarder

Careful selection of a forwarder will enable the shipper to find the services he needs. Some are prepared to act only as a consolidator. Others, as one forwarder describes it, are ready to "offer a service that requires our customer to do no more than telephone us to pick up his shipment, and to attach to his shipment a copy of his invoice to his customer and a single sheet of paper containing his instructions to us. We can do everything else—export documentation from the U. S., import documentation for the country of destination, insurance coverage, as well as move it for less than airline rates."

For a breakdown of the types of service offered by air express-air freight forwarders see box on opposite page.

Package Requirements

Most foreign freight forwarders advise that materials to travel by air freight should be packed in a strong, light-weight container. The lower the weight, the lower the cost of transportation.

Many materials can be shipped in their manufactured state with light wrapping or chemical coatings. Other goods require solid reinforcing to prevent damage in transit. In some cases packaging must be based upon the requirements of the surface transportation which will carry the shipment to or from the plane.

Shipping invoices and packing lists should be prepared and sent to the forwarder as soon as the shipping department indicates the packing information to the billing department. For shipments abroad, a description of the material in the language of the destination country should accompany these papers. Also enclosed there should be a sheet giving any specific instructions the consignee desires—choice of air carrier, flight departure, or other pertinent information.

Observing special instructions, the forwarder will apply his knowledge of routing, flight information, customs and consular procedure to speed the shipment. He will arrange for delivery of goods to their destination and, in many cases, notify consignee of the pending arrival.

Proper Marking

Proper marking is a point to be watched by the shipper. Forwarders report that many shipments are poorly marked, particularly when a container is being re-used.

To clarify the meaning of special markings on air cargo, the International Air Transport Association recently decided upon certain symbols which are accepted by all member nations. Previously, different symbols were used by different countries.

Proper marking also includes marking for the destination country. "Keep Dry" has a clear enough meaning in the U. S. but at destination it may be meaningless. For a Spanish-speaking country, the marking should be "Mantengase Seco." But if it is a South American shipment, the language at destination may be Portuguese, in which case the marking should be "Afasta Da Humidade," hardly similar.

Forwarders, in addition to offering a lower rate on some shipments, often can provide shippers with added assurance that a shipment will leave at the desired time. Because they are regular customers, forwarders and express companies are given a space priority or guarantee that their cargo will move on a particular flight or during the day it is delivered to the airline.

Help for the Airlines

Since the introduction of air forwarding, as we now know it, the forwarders have gained acceptance by a large group of shippers. At the same time they have helped the airlines in the development of air freight.

Air freight's growth is dependent on attracting new business. The forwarders' low minimum rate and lower-than-air-freight rate on some other items has helped give planes capacity loads.

Ground Operations

The airlines also have gained because the forwarder performs many of the ground functions for his shipper, permitting the carrier to apply more time to developing airport-to-airport operation.

Service

forwarder service

These ground functions include paper work, pickup and delivery, and assembling bulk shipments.

The carriers also benefit from the forwarders' sales organizations and advertising programs. These are helping to swell the volume of freight in flight.•

Types of Shipper Service

Air shipper services in addition to those of the carriers can be divided into three groups. More than one group may be available from a single organization.

The basic service of most forwarders is consolidation of shipments going to distant cities to achieve a rate reduction. These cargoes are despatched two or three times a day.

A second type of service is expedited air freight. This type of service emphasizes speed. Like other "express" services, it frequently involves a higher rate than air freight. However, pickup and delivery is direct and shipments are followed by teletype. Thus any delay along the way can be minimized through re-routing or substitution of another form of transportation.

The third type of service is express. It offers a fast, coordinated service on a single waybill with a single carrier responsibility and regular route pickup and delivery service. Routing is via the fastest connection. Express provides service to many off-line locations by surface transportation, which also is used if air service is delayed.

Directory

Listing of air express—air freight forwarders registered with the CAB. "D" indicates domestic and "F" represents foreign service.

ABC AIR FREIGHT CO., INC., (DF) 405 W. 37th St., New York, N. Y.

ACE AIR FREIGHT CO., INC., (D) 330 W. 27th St., New York, N. Y.

ACME AIR CARGO, INC., (DF) 2 Lafayette St., New York, N. Y.

AIR CARGO CONSOLIDATORS, INC., (DF) 8 Shotgun Lane, Levittown, N. Y.

AIR CARGO TRANSPORT, (D) Logan International Airport, East Boston 28, Mass.

AIR DISPATCH, INC., (D) 630 9th Ave., New York 36, N. Y.

AIR EXPRESS DIVISION, RAILWAY EXPRESS AGENCY, INC., (D) 219 E. 42nd St., New York 17, N. Y.

AIR EXPRESS INTERNATIONAL CORP., (DF) 90 Broad St., New York 4, N. Y.

AIR FREIGHTWAYS, (D) North Philadelphia Airport, Philadelphia 36, Pa.

AIR-LAND FREIGHT CONSOLIDATORS, INC., (D) 226 Jackson St., San Francisco, Calif.

AIR LANES SERVICE, INC., (D) 14805 Detroit Ave., Cleveland 7, Ohio

AIR-SEA FORWARDERS, INC., (DF) 406 S. Main St., Los Angeles 13, Calif.

AIRBORNE COORDINATORS, INC., (D) Cleveland Hopkins Airport, Cleveland 11, Ohio

AIRBORNE FREIGHT CORP., (DF) Box 631, San Francisco Int'l Airport, South San Francisco, Calif.

AIRWAYS PARCEL POST SERVICE, INC., (D) 472 10th Ave., New York 18, N. Y.

ALAS IBERO AMERICANAS, INC., (F) Box 85, Miami 48, Fla.

ALL-AIR TRANSPORT, INC., (F) 6 State St., New York 4, N. Y.

ALLIED AIR FREIGHT, INC., (DF) 428 9th Ave., New York 1, N. Y.

AMERICAN SHIPPERS, INC., (DF) 810 E. 18th St., Los Angeles 21, Calif.

ANDERSON EXPRESS, LTD., (D) Operations Bldg., N. Y. Int'l Airport, Jamaica 30, N. Y.

ARISTA SHIPPING COMPANY, (F) 38 Pearl St., New York 4, N. Y.

ATWOOD AIR SERVICE, (D) Logan Int'l Airport, Boston 28, Mass.

BARNETT INTERNATIONAL FORWARDERS, INC., (D) 543 W. 43rd St., New York, N. Y.

BARNETT INTERNATIONAL FORWARDERS, INC. OF CALIFORNIA, (D) 6364 Santa Monica Blvd., Hollywood 38, Calif.

BERNACKI, INC., PETER A., (DF) 222 Spring Garden St., Philadelphia 23, Pa.

BONDED FILM STORAGE CO., INC., (D) 630 9th Ave., New York 36, N. Y.

BOR-AIR FREIGHT CO., INC., (D) 307 W. 36th St., New York 18, N. Y.

W. J. BYRNES AND COMPANY OF NEW YORK, INC., (D) 25 Broadway, New York 4, N. Y.

CARIBBEAN & WEST INDIES EXPRESS CO., (F) 611 Security Bldg., Miami 32, Fla.

CHICAGOLAND AIR FREIGHT, (D) 1325 W. Randolph St., Chicago 7, Ill.

CITY MESSENGER AIR EXPRESS, (D) 1414 Cole Place, Los Angeles 28, Calif.

CLOUD LANE, (D) Box 1431, Fort Worth, Texas

CONSOLIDATED AIR FREIGHT, INC., (F) 631 Fernandez Juncos Ave., San Juan, Puerto Rico

CONTINENTAL FORWARDING SERVICE, (D) 146 W. West St., Baltimore 30, Md.

DOMESTIC AIR EXPRESS, (D) Box 2611, Terminal Annex, Los Angeles 54, Calif.

DORF INT'L., LTD., (DF) 89 Broad St., New York, N. Y.

DOW CO., INC., FRANK P., (D) Olympic National Bldg., Seattle 4, Wash.

EMERY AIR FREIGHT CORP., (DF) 801 2nd Ave., New York, N. Y.

EMPIRE FOREIGN AIR FORWARDERS, INC., (F) 117 Liberty St., New York 6, N. Y.

FLETE INTERNATIONAL CORP., (F) 105 Broad St., New York 4, N. Y.

FLYING CARGO, INC., (F) 140 Cedar St., New York N. Y.

4-A AIRFREIGHT CONSOLIDATORS & FORWARDERS, INC., (D) 5719 N. Central Ave., Chicago 30, Ill.

FREEDMAN & SLATER, INC., (F) 10 Bridge St., New York 4, N. Y.

GENERAL AIR FREIGHT, INC., (D) 1003 W. Huron St., Chicago, Ill.

GILBERT AIR TRANSPORT CORP., (D) 645 W. 40th St.,New York, N. Y.

GLOBAL AIR CARGO, (DF) 420 Market St., San Francisco 11, Calif.

HENJES, INC., FREDERIC, JR., (F) 38 Pearl St., New York 4, N. Y.

HENSEL, BRUCKMANN & LORBACHER, INC., (F) 6 State St., New York 4, N. Y.

HOP AIR FREIGHT FORWARDER, INC., (D) 265 W. 30th St., New York 1, N. Y.

INTER-MARITIME FORWARDING CO., INC., (F) 38 Pearl St., New York 4, N. Y.

INTRA-MAR SHIPPING CORP., (F) 42 Stone St., New York 4, N. Y.

K & R AIRFREIGHT, INC., (D) 2626 N. Clybourn Ave., Chicago 14, Ill.

LIFSCHULTZ AIR FREIGHT, (D) 28 N. Franklin St., Chicago 6, Ill.

NATIONAL AIR FREIGHT FORWARDING CORP., (DF) 19 Rector St., New York 6, N. Y.

OLLENDORFF, INC., H. G., (DF) 239 W. 68th St., New York 23, N. Y.

PACIFIC AIR FREIGHT, INC., (DF) Box 444, Seattle-Tacoma Airport, Seattle 88, Wash.

PAN-MARITIME CARGO SERVICE, INC., (F) 232 Water St., New York 38, N. Y.

REPUBLIC AIR FREIGHT, (D) 168 12th Ave., New York 1, N. Y.

SHULMAN, INC., (D) 20th St. & Washington Ave., Philadelphia 46, Pa.

SMITH INTER-OCEAN, INC., J. D., (F) 53 Broadway, New York 6. N. Y.

SUN TRANSPORTERS, INC., (DF) 45 White St., New York 13, N. Y.

UNITED PARCEL SERVICE-AIR INC., (D) Room 400, 331 E. 38th St., New York 16, N. Y.

UNIVERSAL AIR FREIGHT CORP., (DF) 345 Hudson St., New York 14, N. Y.

W.T.C. AIR FREIGHT, (D) 1440 E. 5th St., Los Angeles 33, Calif.

WESTERN AIR FREIGHT INC., (D) Castor Ave. & Bath St., Philadelphia 34, Pa.

WESTERN TRANSPORTATION CO., INC., (D) 1440 E. 5th St., Los Angeles 33, Calif.

WINGS AND WHEELS EXPRESS, INC., (D) 110th St. at Astoria Blvd., Flushing 69, N. Y.

WORLD FREIGHT FORWARDERS (AIR), (DF) 1225 E. 155th St., Seattle 55, Wash.

WORLD-WIDE SERVICES, INC., (F) 15-19 Ferry St., New York 38, N. Y.

An Industry SOS for

Air Freight Forwarders in Foreign Trade

CAB study reveals that U. S. international air freight forwarders, though making progress, need help. Author suggests that such help should come from the Board in the form of relaxed regulatory control and restrictions

By John H. Frederick
DA Distribution Consultant

FOR THE past two years the CAB has been attempting to determine what policy should be followed for the future of air freight forwarding in the international field.

The Board has discovered that, although a respectable volume of freight has been processed and a considerable growth has occurred since its inception in 1949, the industry still is relatively undeveloped. Profits have been minor, and the forwarders face obstacles which appear to inhibit reasonable growth.

Forwarder Obstacles

Chief among these obstacles seem to be:

1. The fixed rate structure of the airlines composing the International Air Transport Association (IATA);
2. The lack of CAB regulation over rates and practices of foreign freight forwarders; and
3. The competitive nature of the industry, with the airlines themselves performing many of the traditional functions of freight forwarders.

As of December 31, 1956, there were 26 licensed international air freight forwarders filing operating reports with the CAB. All of these actually were engaged in the foreign field. Twelve of them are engaged exclusively in international operations.

Within a recent 12-month period 17 of the international freight forwarders consigned 40,631 shipments to airlines. Total weight of these shipments was 3724 tons. This compares with 30,461 tons enplaned by U. S. international certificated carriers in the same period.

Of the 17 forwarders, only seven showed a substantial amount of consolidation. The highest average was 11 small shipments per consolidation. The average weight per shipment of the international forwarders was 89 lb.

On the whole, the picture of the international air freight forwarder is that of a small organization averaging about 10 or 12 persons. Forwarding revenue on each consolidation is small. A substantial portion of the total revenue is derived from functions other than forwarding. These functions include agency commissions, customs and documentation fees, and pickup and delivery charges.

The distinguishing feature of the forwarder function is consolidation. This process is designed to enable the forwarder to obtain an operating income out of the spread between his charge to the shipper and his payment to the airline for transportation of the consolidated shipment.

Out of this operating income, the forwarder pays the costs of solicitation, advertising, and general overhead including the expenses of filing reports with the CAB, publication of tariffs, and representation at Board proceedings. What is left is operating profit. The operating profit enables the forwarder to charge shippers lower minimum rates than those charged by the airlines, usually for shipments below 100 lb. As a result, additional small-package traffic, which otherwise might be transported by surface carriers, is generated.

Where the forwarder processes a shipment as an IATA agent, earning the standard five per cent commission, new traffic also may be developed for the benefit of the direct carriers. However, in such cases the distinguishing element is that airline minimum rates are used. In cases where the forwarder function operates, generally lower minimum rates are in force. This increases the possibility of generating new traffic and, correspondingly, of diverting existing traffic from the direct air carriers.

Help for the Forwarders

Dr. Frederick suggests that the following six steps can be taken to make continued operations more profitable and more certain for U. S. International air freight forwarders:

1. Permanent licenses should be issued by the CAB, taking the forwarders out of "temporary" business.

2. U. S. forwarders should be permitted to enter into joint rate agreements with end-on foreign freight forwarders in the development of two-way service.

3. Present regulations which prohibit forwarders from shipping in overseas air transportation except in aircraft operated by certificated carriers, or under foreign air permits issued by the CAB, should be modified.

4. Forwarders should be permitted to enter into agreements with airlines, allowing sales commissions or discounts from established tariffs on consolidated shipments.

5. U. S. international forwarders should be permitted to engage in joint loading.

6. International freight forwarders should be permitted to act as airline agents and receive sales commissions.

It is this latter aspect which has caused certain international airlines to seek continued restrictive regulations inhibiting forwarder growth. Generally, these airlines are not now participating to any great degree in the carriage of freight traffic, and are without much lift capacity.

These restrictions would include not permitting commissions on consolidated shipments, prohibiting joint-loading, placing renewal of operating authority on a temporary basis only, and the prohibition of chartering or forwarder shipping via supplemental air carriers.

On the other hand Pan American, the strongest U. S. international air freight carrier, appears not to fear the competition of the forwarders. Pan American encourages forwarder expansion through less restrictive regulation and restrictions on the activities of foreign competitor forwarders. To Pan American, the development of the U. S. international air freight forwarder means help in filling its large international air freight capacity.

None of the airlines objecting to relaxed forwarder regulation has developed any substantial interest in the international small-package business.

The IATA has a $7 minimum rate from New York to Europe, and $8 from interior U. S. points. Certain forwarders have minimums of $4 and $4.50. This suggests either that the IATA carriers are not as efficient as forwarders, or that they are not equally interested in the small-package traffic.

Airline processing of many small shipments with individual airway bill cutting, weighing, tracing, claims processing, etc., represents an expensive and time-consuming task. Without consolidation the burden on the airlines would increase.

Need for Forwarders

Despite the fairly gloomy picture of international air freight forwarding revealed by the CAB study, we need these operators. They are wholly engaged in the generation of air freight, all of which must be transported by the airlines. Consolidation results in lower rates to shippers and development of additional traffic for the direct carriers.

Certificated international airlines have not shown an active interest in developing small-package freight. For these reasons it would appear that the general regulatory approach to the forwarder industry should be one of encouragement. Encouragement should include relaxation of restrictive provisions. Relaxation should not, however, award undue preference to forwarders, inflict unjust discriminations and undue prejudices on the shipping public, or unfair or destructive competitive practices upon the airlines.

If the forwarders are thus permitted to operate in an atmosphere of increased economic freedom they will generate an increasing volume of international air freight. This would benefit both the foreign and domestic commerce.

Help for the Forwarders

There are several things that can be done for the U. S. international freight forwarders to make their continued operation more profitable and more certain:

1. Permanent licenses should be issued by the CAB. A forwarder's operating right should not be temporary. Temporary authorization requires expensive renewal proceedings for all applicants from time to time. It serves notice on creditors that the forwarding function may cease after a stated number of years. The Board should declare the forwarder function an indefinitely continuing part of international air transportation.

2. U. S. forwarders should be permitted to enter into joint rate agreements with end-on foreign freight forwarders in the development of two-way service. It now is necessary either to contract for a break-bulk agent abroad or for the U. S. forwarder to set up his own offices there. In its negotiations with prospective operating

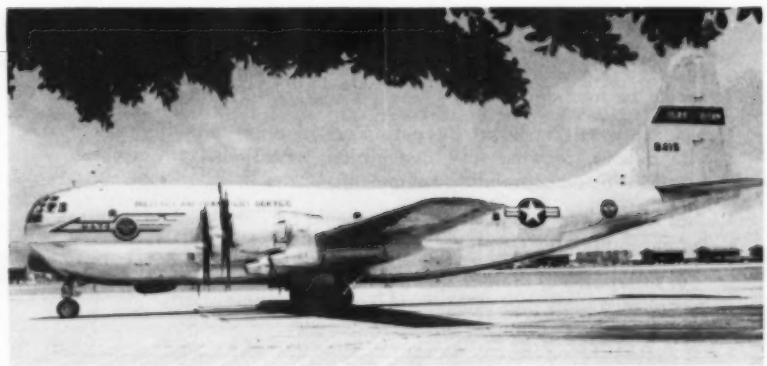
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Military Overhauls Air Cargo

Air Force is experimenting with a system to provide more rapid processing and

By Brig. Gen. R. L. Winn

Director of Transportation
Deputy Chief of Staff Materiel
United States Air Force



Boeing C-97 Stratofreighter saw extensive action in Pacific Airlift during Korean campaign. This 175,000-lb, 350-mph aircraft has a 34,000-lb capacity

ONE OF our most pressing problems is the need for a system to provide more rapid and careful processing, documentation, and handling of air cargo. This need exists in both civil and military air operations. And the need is immediate.

In the military we are faced with ground handling of air cargo on a large scale often under apalling conditions. We must be ready to deliver cargo under combat conditions. Delivery sites include advanced unprepared bases and remote isolated locations. Extreme weather conditions often prevail.

Such operations do not permit highly refined, immovable, fixed-base cargo handling systems. Therefore, we need a part of our system built around rugged and easily transportable equipment.

Anything which is airlifted to advanced sites, however, starts from a domestic terminal. This is where military and commercial air operations have a common problem — terminal cargo handling.

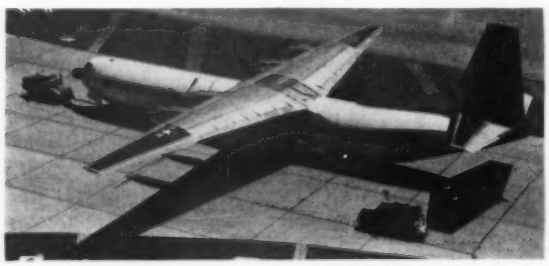
New Air Logistics

The new logistics system of the Air Force requires speedy movement of supplies. An electronic punch card inventory and ordering system reduce procurement and stockpiles substantially. They also help keep our forces combat ready. This means that more spare parts and other support material will be in transit in the pipeline, rather than in dead storage.

Under this concept, airlift is used routinely for high value articles and those which become obsolete rapidly. With shrunken procurement and obsolescence we are more able to shift logistic support from one world area to another according to strategic needs.

Editor's Note: General Winn first spoke on this subject on December 6, 1956, at a meeting of the National Airport Club, in Washington, D. C.

Fitted with four T-34 turbo-props, Douglas C-133 features rear and side loading doors, 100,000-lb capacity



C-124 Douglas Globemaster has maximum take-off gross weight of 185,000 lb, carries 74,000 lb payload

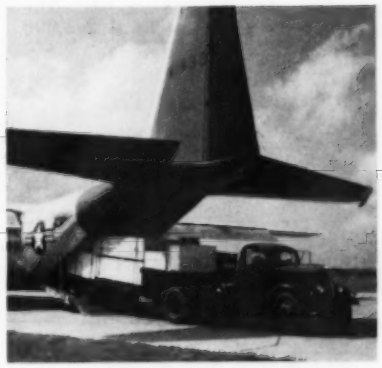


Program

handling of air freight



Lockheed C-130 Hercules, called the USAF's first production turbo-prop transport, will carry 20 tons of cargo, 92 troops, or 74 wounded evacuees



Rear type loading in C-130 permits easy entry of loaded tractor-trailer

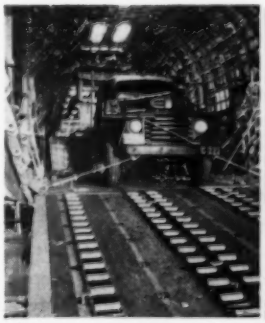


Fairchild's C-123 assault and logistics transport set an unofficial weight lifting record when it took off and landed at gross weights of 56,000 lb

The aircraft industry has made great strides in cargo transport design. Planes with large box-shaped cargo compartments, truck-bed height floors, and rear opening doors are just a few late developments. However, ground handling continues to create "choke points" in air movement. We cannot afford to shackle the speed and flexibility of air to antiquated ground handling.

Many of our terminals are inadequate and poorly equipped.

(*Please Turn to Page* 89)

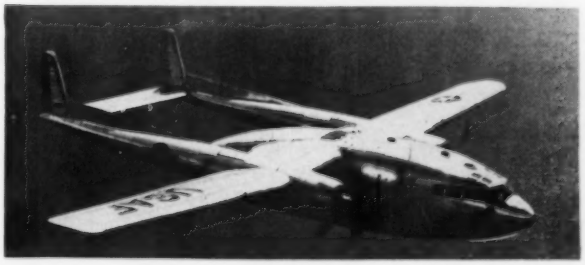


Fully loaded truck tied down in 48-ft high C-133



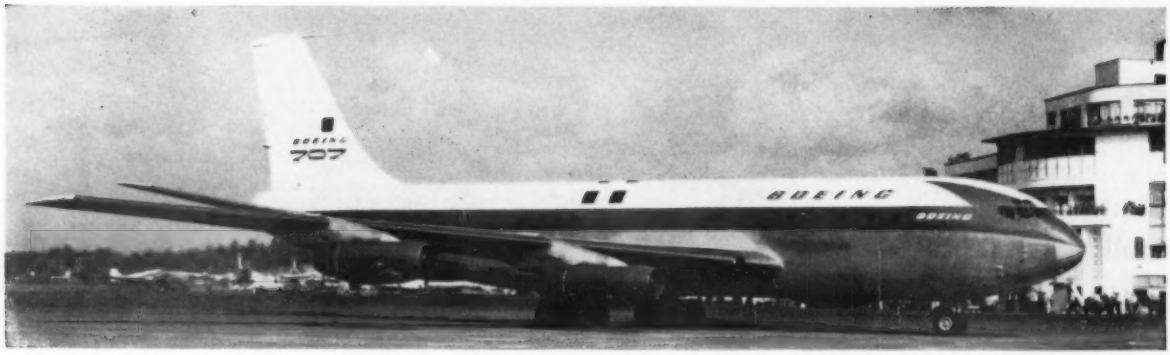
In recent test some 35,000-lb of cargo was fork-lift loaded into C-130 in approximately one hour

Fairchild's Famous Flying Boxcar, the C-119, can carry over 30,000 lb of cargo at 30,000 ft and about 250 mph

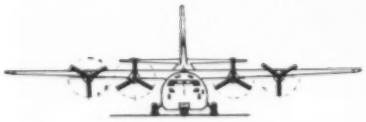


America's first jet transport, Boeing KC-135, has cruising speed of 550 mph, weighs 190,000 lb loaded





Boeing's turbo-jet 707 is built in combination and all-cargo models. The new plane's gross weight is 245,000



Jet Planes to Speed Freight of Future

KEY to the future of air freight is the development of new aircraft.

Speed in air, faster loading, and operating economy are dependent upon flying of new equipment. Faster planes will mean door-to-door rather than airport-to-airport overnight transcontinental service. Planes designed for fast loading will reduce the time lost in ground operation. Newer aircraft which create operating economies will open the way to lower rates.

Next to appear on our commercial airlines will be turbo-jet and turbo-prop airlines. In their wake will be turbo-prop and jet all-freighters developed from those in use by the military.

These planes are not in the distant future. Prototypes of many of them are in service today and others are being built in U. S. and European shops at the present time. The airlines have two-billion-dollars in orders for these planes.

In the long-range turbo-jet field there will be planes such as the Boeing 707, the Douglas DC-8, and the Convair 880. Lockheed's long-range development is the turbo-prop Electra.

Crusing speeds for the jets are listed as 600 mph while the turbo-prop is rated at 400 mph. Flying time from New York to Los Angeles can be cut to less than five hours at these speeds. New York to London will take six hours.

Since jets operate most efficiently at high speeds, they are particularly suited for long-range flights. For shorter flights, many manufacturers are developing turobo-prop models.

Many observers see the future all-cargo plane as a completely new design unrelated to the combination aircraft. Others are expecting all-cargo versions developed from standard passenger airliners.

In an all-cargo plane, some designers see floor locations as an important factor, as in the case of military cargo aircraft. The aim is to build aircraft with truck level floors and high wings that do not obstruct loading. Fairchild's Turboboxcar (small drawings on these pages) uses this approach.

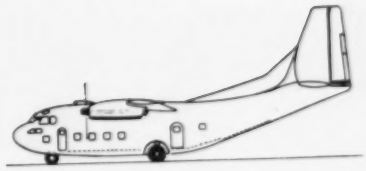
Other designers claim that for flights between terminals truck-bed height of the floor is not important. Proper terminal design —truck ramps, adjustable loading docks, etc.—permits cargo to be unloaded at truck level even though the plane floor is 10 ft. high.

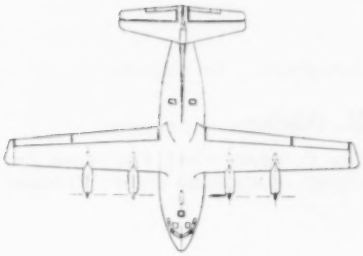
The high wing is not considered as aerodynamically efficient for high speed flight as low wing design.

High altitude operation will be required to achieve speeds necessary for high airplane work capability. Therefore, many airfreighters will be partly or entirely pressurized.

Many of the potential air cargo commodities will require pressurization and air conditioning. In addition, many all-cargo planes will be convertible to passenger service, in which case pressure control will be needed.

Improved aircraft will bring new speed in the air, faster loading, and more economical operation. Prototypes guide airlines in selection of jets and turbo-jets for new transportation era



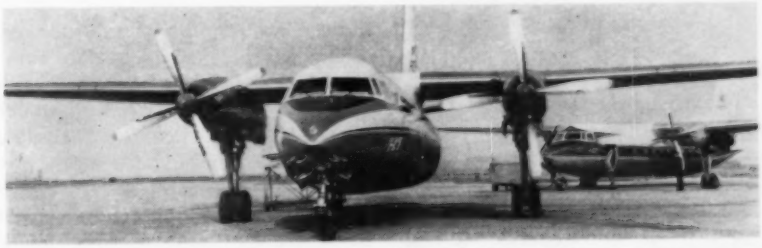




The Bristol Britannia, one of the European planes being introduced to U.S. airways, is scheduled for delivery in time to go into service during 1957

All of the new combination planes to be introduced in the next few years are not for the luxury service on the major lines. Innovations are being developed in planes for local and regional service. For example, the Fairchild F-27 can accommodate a varying passenger-cargo ratio by moving the bulkhead separating the two sections of the plane. Freight is loaded at truck-bed level in front of the wing.

Development of future air transports is not being held exclusively to land-based planes. The Martin Company, builder of the experimental XP6M Seamaster, has designed a new multi-jet seaplane transport known as the Seamistress.•

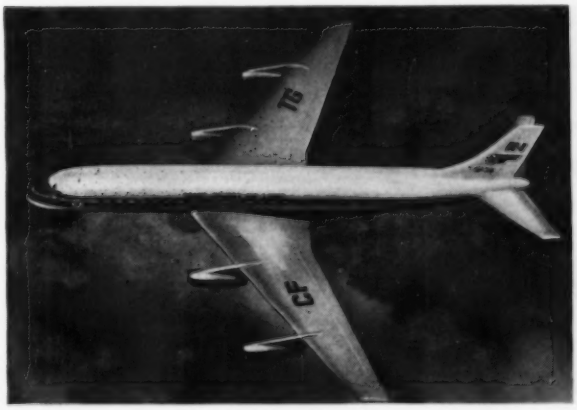


Fairchild returns to commercial aviation with the F-27, for which it has received 46 firm airline orders and 14 other orders from private corporations



The Navy's experimental XP6M Seamaster has helped its designer, Martin in preparing a multi-jet seaplane transport. The new design is the Seamistress

The Douglas DC-8 will carry between 118 and 144 passengers at cruising speeds up to 600 mph. It takes a crew of 3-5



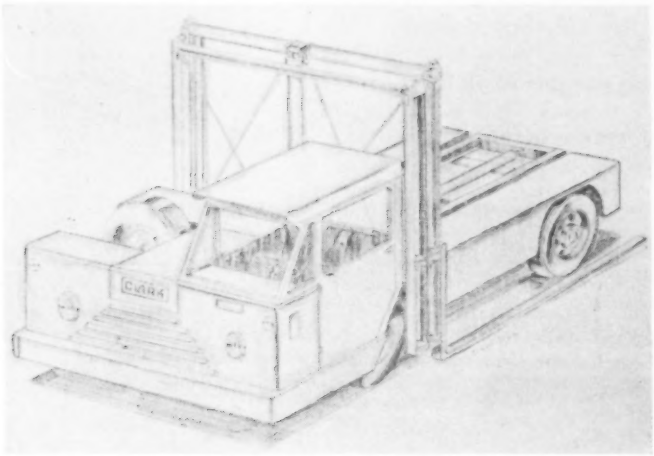
Lockheed's Electra is four-engine turbo-prop designed for long-distance operation. Cruising speed is about 400 mph



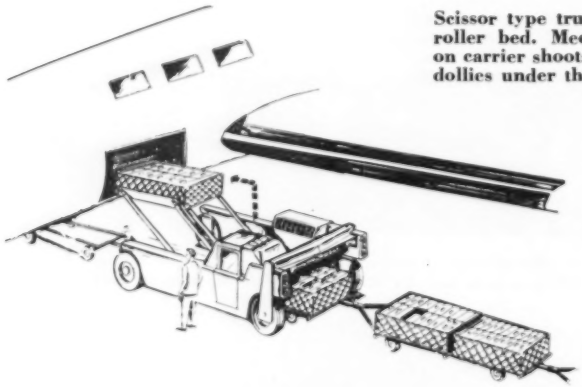
Handling

By R. H. Davies

Vice President, Clark Equipment Co.
Battle Creek, Michigan

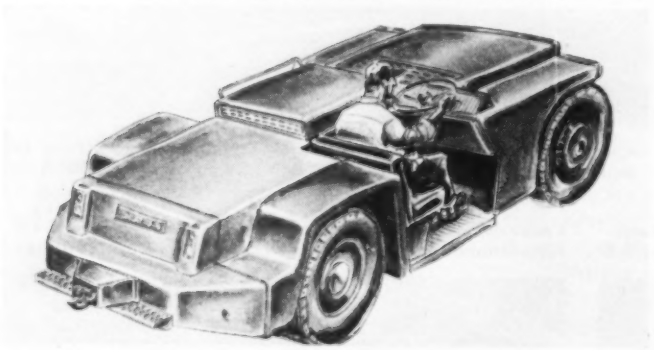


Truck designed for unit-load containers. Forks lift box from the ground to aircraft floor level, then push container into aircraft



Scissor type truck with roller bed. Mechanism on carrier shoots empty dollies under the plane

Projected tractor for ground towing jet freighters calls for a vehicle of 25,000-30,000-lb drawbar pull for 350,000-lb aircraft



Air transport is a growth industry. Its rate of expansion in the next 25 years will be determined by the solution of problems much more complex than those mastered in its first quarter-century.

New aircraft types now on order spell out quite clearly the trend in passenger operation. However, their effect upon air freight is not so well defined.

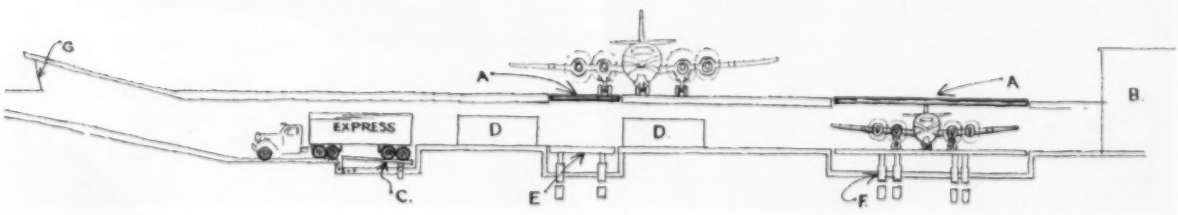
Systems Approach

The air cargo industry soon will reach the point where existence of an airplane that carries a bigger load faster at less cost is not enough to meet the most important needs of the industry. Many observers are convinced that a systems approach is required if air cargo is to achieve its potential. Instead of a piecemeal fitting together of independently developed aircraft, terminals, and ground equipment, the industry needs an integrated program to develop all phases of moving freight.

Two years ago Clark set up a Materials Handling Development Center to help anticipate future materials handling needs of all elements of U. S. industry, including air transportation.

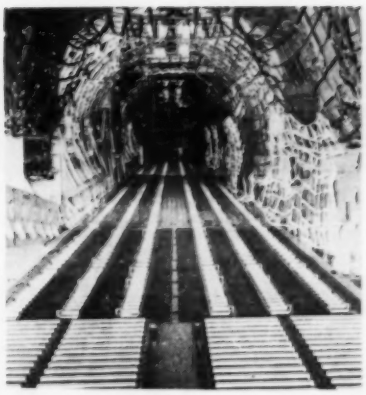
The Center is a tool to guide research and engineering into channels that will

The Hydraulic Ramp Approach to Ground Handling



Horizons in Air Freight

Instead of piecemeal development of aircraft, terminals, and ground equipment, the industry needs a systems approach to integrate all phases



Roller conveyors on plane floor and a loading dock of the same height

give engineers more lead time. This should preclude the possibility of being forced into expensive crash programs to develop machines after a handling problem becomes critical.

Development Center studies of air transport are based upon the assumption that air transport is a series of materials handling operations. Operations include moving passengers, fuel, or freight to and from an airplane, then moving the plane from city to city or continent to continent.

Efficient materials handling requires use of one or two techniques as much as practical. Material is moved continuously, as with a pipeline or belt conveyor, or small units are integrated into a larger mass that is more economical to move. This is the unit load concept.

Air freight operations, it seems, require extension of the current unit load concept to its logical conclusion—the detachable pod.

Most commercial airplanes now in service or on the boards are derived from earlier military designs. We believe the rudiments of the airframe of the future can be seen in Convair's B-68 "Hustler." Ideally, any vehicle either is specialized to carry a restricted type of cargo efficiently (a dump truck is a classic example) or is built with minimum structure consistent with strength requirements (like a flat-bed truck) to provide maximum versatility.

In the materials handling business this led to the specialized straddle carrier and the fork lift truck with its interchangeable, specialized attachments.

Although the pod may be the ideal solution, in the next 25 years most cargo probably will be moved by aircraft of conventional configuration. The air transport industry, then, must be concerned as much with the evolution of a materials handling system fitted to these planes, as with a revolutionary pod system.

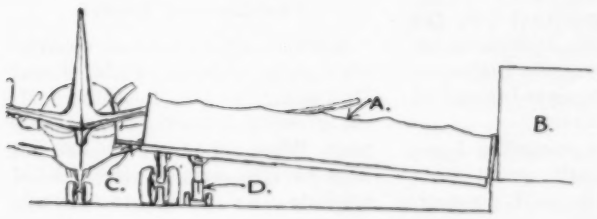
By adopting a systems approach, conventional aircraft can be fitted into a program which will ease the transition to pod-carrying planes. Such an approach will require careful studies of minor modifications of the airframe. For example, adequate hatches must be provided for efficient loading.

Tomorrow's Terminal

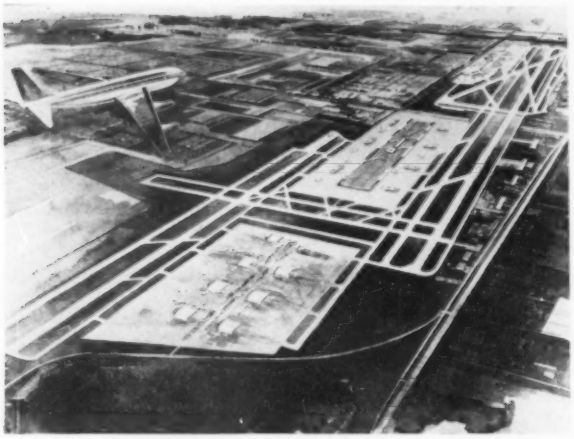
We believe that the air terminal of the future will require tangential runways and taxiways; dispersed fueling facilities served by underground pipelines; separate

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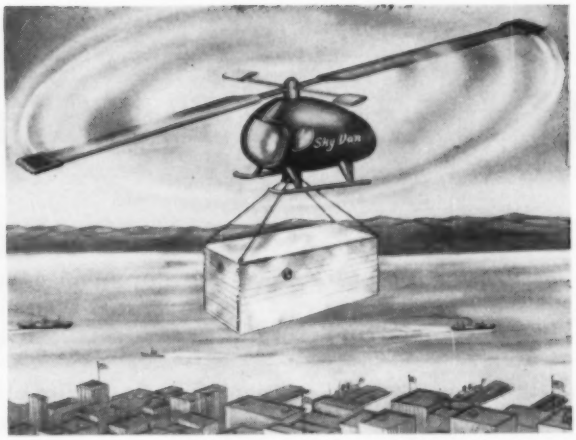
Editor's Note: The Clark Materials Handling Development Center was established to do advance research in all phases of materials handling. In their work on handling's future in air transportation the people at Clark had the help of some of the nation's leading aircraft designers, airport operators, and other transportation experts. DISTRIBUTION AGE gratefully acknowledges the cooperation of all these people for their part in the development of this article.



Rotary Lift Co., suggests the hydraulic ramp and elevator approach to ground handling. Underground installation on the opposite page is for freight and passenger loading and unloading. Legend includes: A, power operated doors; B, terminal; C, truck dock with hydraulic levelers; D, freight storage; E, hydraulic lift which raises freight to aircraft door; F, hydraulic lift to raise or lower aircraft to lower or grade level. Drawing at left shows: A, canvas covered ramp with adjustable height; B, freight building; C, push-out bridge; D, hydraulic jack mounted on cart.



Proposed facilities for Los Angeles International Airport show existing terminal (back right) as cargo center



Handling is minimized when a helicopter transports a containerized load. Van is ready when 'copter arrives

Air Freight's Future— Challenge to Airlines

By Robert Warner

DA Editorial Staff

CAA predicts 600-million ton-miles by 1960 and one billion by 1965. Wider acceptance of air cargo is seen as shippers discover advantages

"UNDOUBTEDLY the most challenging aspect of commercial aviation is that, while its past record is loaded with statistics denoting a phenomenal growth, the industry has yet to reach its full potential as a public service. I believe this is more evident in cargo operations than in any other phase of our business."

This statement by Thomas F. Armstrong, president of Eastern Air Lines, is typical of the optimism with which the carriers view air freight.

Citing the case of his own company, Armstrong says that air-freight ton-miles have multiplied more than 200 times while revenue-passenger-miles have multiplied eight times.

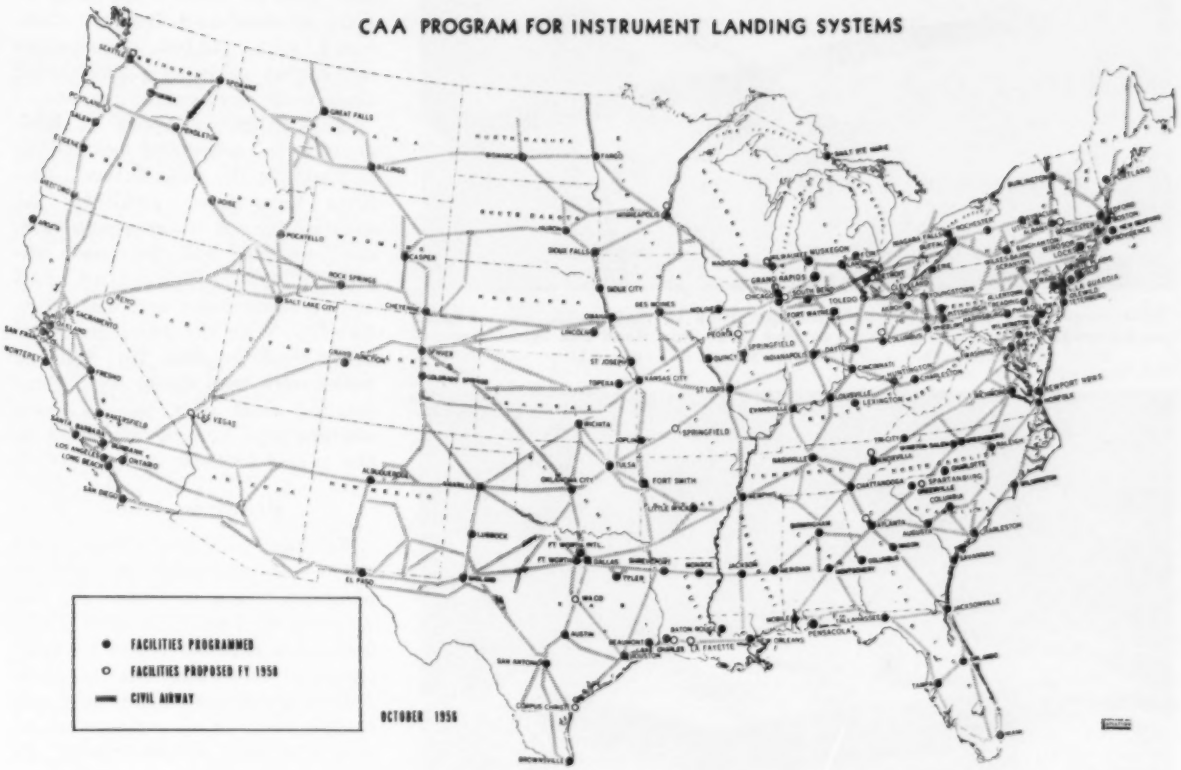
"While air cargo will expand still further with the inauguration of service with larger jet-powered passenger planes," Armstrong says, "I think that its ultimate future lies still beyond, possibly at some time in the 1960's, when the aircraft manufacturers design and build an airplane especially for carrying goods, rather than passengers.

"Under present arrangements, which can be still further expanded if necessary, essential air cargo needs are being met, but at best, in my opinion, through makeshift methods. Even the so-called cargo planes that now are in operation are analogous to trucking goods over the highways in converted limousines instead of tractor-hauled vans.

"The air cargo operation I see for the future will entail hundreds of specially built aircraft, with integral loading and unloading facilities, landing and taking off from specially designed air cargo terminals. This will be a highly specialized operation, but then I expect air cargo to become a highly specialized business, no longer an adjunct to the passenger operation, but a separate entity in itself," Armstrong concludes.

Fast-Growing Branch

Viewing the intercontinental air-freight future, KLM Royal Dutch Airline sees it as the fastest growing branch of air transport. When jet transports are put into service around 1960, KLM predicts, air cargo traffic will



"Safety" for passengers is "dependability" for shippers.

CAA in increasing aircraft safety has made air freight more dependable. This is the case with the electronic instrument landing system, the pilot's electronic approach track to safe landing on the airport runway.

ILS, already a part of big airport operation, will be extended to include airports having CAA airport traffic control and 700 or more annual instrument approaches. Recommendations also call for a tie-in with the military navigation system to meet the needs of civil and military jet operations over common routes.

A greater number of airports using ILS and a second system at busy airports will reduce the effect of adverse weather on air service.

have doubled in volume—partly due to higher speeds and greater carrying capacity.

The CAA, predicting the future of air cargo, says, "Assuming an expanding economy and continued improvement in air freight service, further gradual increases in traffic can be expected which will lift volume to approximately 600-million ton-miles by 1960, one billion ton-miles by 1965, and 1.6-billion ton-miles by 1970."

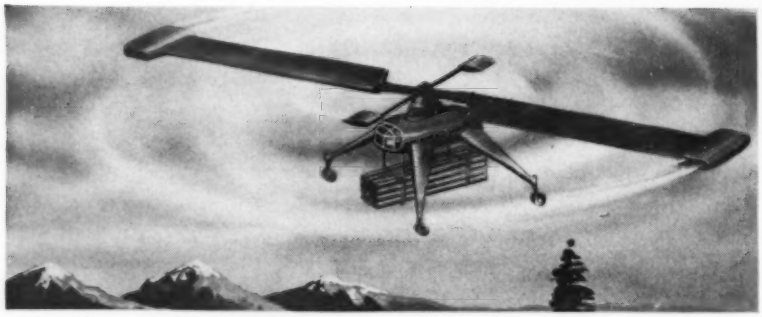
Achievement of these projections will require average annual increases of about 12 per cent between now and 1965 and 10 per cent between 1966 and 1970. This growth trend is somewhat higher than the 8 per cent average increase obtained during the 1950-1955 period when traffic development was hampered by equipment shortages and organizational and financial difficulties. However, it is well below the 17 per cent average annual increase obtained between 1946 and 1955.

"Should rates come down more rapidly than expected to the 8 cents-10 cents per ton-mile level, making air cargo more competitive with truck freight, a significantly higher growth rate would be insured," the CAA says. "On the other hand, should air cargo merely expand at the same rate as the economy as a whole, traffic would rise to a minimum of about 600-million ton-miles by 1970."

These predictions of CAA are based on replacement of high-cost cargo planes with more efficient airplanes such as DC-6As and Lockheed 1049Hs; a significant rate cut based on new efficiency of equipment; increasing cargo capacity; packaging and handling development; an expanding national economy; and rising public acceptance of air cargo.

Acceptance of air cargo is expected as shippers discover the speed and indirect cost savings resulting from its use. Not only does air cargo provide the means for extension of market areas but it also makes possible economies

(*Please Turn Page*)



Helicopters often provide the only transportation to inaccessible areas where no highways exist. They also have carried cargo into flood and disaster areas



New York Port Authority's West 30th St. Heliport is 8 minutes from LaGuardia Airport, 10 minutes from Newark, and 15 from the International Airport

Air Freight's Future . . .

(Continued from Preceding Page)

in distribution methods, warehousing, merchandising, and inventory practices. There may be additional savings in insurance and packaging.

Also involved in the development of air freight are steep gradient aircraft, specialized airport facilities, and electronic control devices.

Steep gradient aircraft are under study throughout the country, according to the Daniel and Florence Guggenheim Aviation Safety Center at Cornell University. This type of equipment, present in commercial aviation as the helicopter and certain takeoff and landing aids, increases the speed range at the lower end. Safety is one advantage of this type of equipment. Others are smaller airports which can be built near the center of a city and shorter trip time.

The steep gradient field has four types of aircraft—lift supported aircraft; rotary wing aircraft, propulsion supported aircraft, and craft receiving outside assistance.

Helicopters

The helicopter as an airline vehicle still is in its infancy. As a heavy cargo hauler, however, it has come of age in military service in those areas of the world where the nature of the terrain and weather makes cost of other transportation prohibitive.

A decade ago the only helicopter airline in this country carried one classification of cargo—mail. It carried no passengers. In 1947 it accounted for only 3000-ton-miles and had a ton-mile load factor of only 18.4 per cent.

The three helicopter airlines operating last year compiled a new high of 136,000 ton-miles of mail, express, and freight. Combined with 145,000 passenger miles, they achieved a load factor close to 50 per cent.

More widespread use of helicopters in scheduled service is foreseen in the near future. Airlines have been awaiting the availability of twin-engine aircraft which will increase efficiency, lower operating and maintenance costs, and add to reliability. With the development of turbo-shaft engines for military helicopters well under way, commercial craft with two or more engines will become available in the period 1959-60.

Helicopter Lines

To date helicopter airline operation has paralleled the development of larger airlines. In Los Angeles, Chicago, and New York, helicopter airlines began as mail carriers, depending heavily upon federal subsidies. They now are carrying other classifications of cargo, as well as passengers. As the vehicle itself is increased in efficiency, demand for service should increase and the need for subsidy lessen.

The newest helicopter line, started this summer, is a parcel service. Helix Air Transports, Inc., of Dallas and Fort Worth, Texas, has three daily scheduled runs between the cities (30 miles apart). Charges are 90 cents for any parcel up to 10 lb and 15 cents per pound over that.

New York Airways, Inc., helicopter line certificated to fly between New York's three major airports — Newark, Idlewild, and LaGuardia—has grown quickly. Its services now extend into cities north of New York City and into communities in Connecticut and New Jersey.

An important addition to this service was the opening a year ago of the Port Authority-West 30th St. Heliport in the heart of the city.

Some observers feel that the answer to the short or vertical takeoff problem is not the helicopter. While helicopter research, building, and operation continue, one builder is working for the

(*Please Turn to Page* 93)

Directory of Air Carriers

Certificated

AAXICO (AMERICAN AIR EXPORT & IMPORT CO.), International Airport, Box 875, Miami 48, Fla. Equipment: 16 C-46's.

AEROVIAS SUD AMERICANA, INC. (ASA International Airlines), Pinellas International Airport, St. Petersburg, Fla. Equipment: 6 C-46's.

ALASKA AIRLINES, INC. 2320 Sixth Ave., Seattle, Wash. Equipment: DC-4's; DC-3's; C-46's.

ALASKA COASTAL AIRLINES, 2 Marine Way, Juneau, Alaska. Equipment: 1 Catalina; 9 Grumman G21A's; 1 Lockheed Vega; 1 Bellanca; 3 Piper Pacers; 1 Cessna 195; 1 Hiller H-12C Helicopter.

ALLEGHENY AIRLINES, INC., Washington National Airport, Hangar No. 12, Washington 1, D. C. Equipment: 16 DC-3's; 6 Martin 202's.

AMERICAN AIRLINES, INC., 100 Park Ave., New York 17, N. Y. Equipment: 37 DC-7's; 75 DC-6's; 7 DC-6A's; 6 DC-4's; 74 Convairs; 13 Air Freighters.

BONANZA AIR LINES, INC., Box 391, McCarran Field, Las Vegas, Nev. Equipment: 9 DC-3's; 1 Modified C-47.

BRANIFF AIRWAYS, INC., Love Field, Dallas 19, Texas. Equipment: 23 DC-3's; 9 DC-6's; 25 Convair 340's; 2 049 Constellations; 2 C-46's; 1 C-47.

CAPITAL AIRLINES, INC., Washington National Airport, Washington 1, D. C. Equipment: 19 DC-3's; 15 DC-4's; 13 Constellations; 54 Viscounts.

CARIBBEAN-ATLANTIC AIRLINES INC., Box 6035, Loiza Station, Santurce, Puerto Rico. Equipment: 4 DC-3's.

CENTRAL AIRLINES, INC., Meacham Field, Ft. Worth, Texas. Equipment: 12 DC-3's.

CHICAGO HELICOPTER AIRWAYS, Inc., 5240 W. 63rd St., Chicago 38, Ill. Equipment: 6 Bell 47-G's; 3 S-55's.

CHRISTENSEN AIR SERVICE, Anchorage, Alaska. Equipment: 1 J4F2-Grumman Widgeon.

CONTINENTAL AIR LINES, INC., Stapleton Airfield, Denver 7, Col. Equipment: 15 DC-3's; 6 CV-340's; 5 DC-6B's; 3 Convair 440's.

CORDOVA AIRLINES, Box 1399, Anchorage, Alaska. Equipment: 2 DC-3's; 1 C-46; 1 Grumman Widgeon; 2 Cessna 180's; 3 Cessna 170's.

DELTA AIR LINES,, INC., Atlanta Airport, Atlanta, Ga. Equipment: 11 DC-7's; 7 DC-6's; 20 Super-Convair 340's; 4 049 Constellations; 5 Convair 440's; 14 DC-3's; 2 C-47's (Cargo).

EASTERN AIR LINES, INC., Eastern Air Lines Building, 10 Rockefeller Plaza, New York 20, N. Y. Equipment: 19 Constellations; 1 C-54; 39 Super Constellations; 60 Martin 404's; 20 DC-7's.

ELLIS AIR LINES, Box 1059, Ketchikan, Alaska. Equipment: 2 Aeronca Sedans; 1 Cessna 180; 1 Piper Cruiser; 9 Grummans.

THE FLYING TIGER LINE INC., Lockheed Air Terminal, Burbank, Calif. Equipment: 7 C-54's; 27 C-46's; 7 DC-6A's; 8 DC-4's.

FRONTIER AIRLINES, INC., Stapleton Airfield, Denver 5, Col. Equipment: 14 DC-3's; 13 DC-3C's.

HAWAIIAN AIRLINES LTD., Honolulu International Airport, Honolulu 17, T.H. Equipment: 4 DC-3's; 2 DC-3's; 5 CV-340's; 2 DC-3's (Cargo).

LAKE CENTRAL AIRLINES, Inc., Weir Cook Municipal Airport, Indianapolis 44, Ind. Equipment: 8 DC-3's.

LOS ANGELES AIRWAYS, Inc., 5901 W. Imperial Highway, Los Angeles 45, Calif. Equipment: 2 Sikorsky S-51's; 5 Sikorsky S-55's.

MACKEY AIRLINES, INC., Broward County, International Airport, Fort Lauderdale, Fla. Equipment: 4 DC-3's; 2 DC-4's.

MIDET AVIATION CORP., Palm Beach International Airport, West Palm Beach, Fla.

MOHAWK AIRLINES, INC., Cornell University Airport, Ithaca, N. Y. Equipment: 10 DC-3's; 3 Convair 240's; 4 DC-7's; 8 DC-6B's; 4 DC-6's; 12 CV-340's; 10 Lodestars; 6 CV-440's.

NEW YORK AIRWAYS, INC., LaGuardia Airport Station, Flushing 71, N. Y. Equipment: 5 Sikorsky S-55's; 1 Bell 47H.

NORTH CENTRAL AIRLINES, INC., 6201 34th Ave., S, Minneapolis 23, Minn. Equipment: 23 DC-3's.

NORTHEAST AIRLINES, INC., Logan International Airport, 239 Prescott St., E. Boston 28, Mass. Equipment: 6 Convairs; 12 DC-3's; 10 DC-6B's.

NORTHERN CONSOLIDATED AIRLINES, INC., 414 Fourth Ave., Anchorage, Alaska. Equipment: 4 DC-3's; 12 Cessna T-50 Bushmasters.

NORTHWEST AIRLINES, INC., 1885 University Ave., St. Paul 1, Minn. Equipment: 9 B-377's; 4 L-1049G's; 10 DC-6B's; 18 DC-4's; 7 DC-3's.

OZARK AIR LINES, INC., Box 6007, Lambert Field, St. Louis 21, Mo. Equipment: 19 DC-3's.

PACIFIC NORTHERN AIRLINES, INC., Anchorage, Alaska, (1626 Exchange Bldg., Seaattle 4, Wash.). Equipment: 3 Lockheed 649's; 2 DC-4's; 4 DC-3's.

PAN AMERICAN WORLD AIRWAYS, INC., 135 E. 42nd Street, New York 17, N. Y. Equipment: 26 Strato Cruisers; 5 CV 240 Convairs; 6 DC-3's; 26 DC-4's; 3 DC-6's; 45 DC-6B's; 7 DC-7B's; 33 DC-7C's; 25 DC-8's; 5 Constellations; 20 Boeing 707 Jets.

PAN AMERICAN-GRACE AIRWAYS, INC., 135 E. 42nd Street, New York 17, N. Y.

PIEDMONT AIRLINES, Smith Reynolds Airport, Winston-Salem, N. C. Equipment: 20 DC-3's.

REEVE ALEUTIAN AIRWAYS, INC., 420 D St., Box 559, Anchorage, Alaska. Equipment: 3 DC-3's; 2 Sikorsky S-43's; 1 Grumman Goose; 2 Fairchild 71's; 1 Boeing 80A.

RESORT AIRLINES, INC., 1346 Connecticut Ave., N.W., Washington 6, D. C. Equipment: 9 DC-4's.

RIDDLE AIRLINES, INC., Box 536, International Airport, Miami 48, Fla. Equipment: 32 C-46's; 4 DC-4's; 1 DC-6A.

SAFEWAY AIRWAYS, Merrill Field, Anchorage, Alaska. Equipment: Grumman Widgeon; Piper Apache; Pacers; Super Cubs; Stinsons.

SAMOAN AIRLINES, LTD., 1452 Lihoiho St., Honolulu, Hawaii.

SEABOARD & WESTERN AIRLINES INC., 80 Broad St., New York 4, N. Y. Equipment: Super Constellations 1049D's; DC-4's.

SLICK AIRWAYS, INC., 3000 N. Clybourn Ave., Burbank, Calif. Equipment: 17 C-46's; 8 DC-4's; 4 DC-6A's.

SOUTH PACIFIC AIR LINES, INC., International Airport, Honolulu, Hawaii.

SOUTHERN AIRWAYS, INC., Brown-Marx Bldg., Birmingham, Ala. Equipment: 13 DC-3's.

SOUTHWEST AIRWAYS CO., San Francisco International Airport, San Francisco, Calif. Equipment: 7 Martin 202's; 10 DC-3's; 1 Lockheed 12A.

TRANS WORLD AIRLINES, INC., 10 Richards Rd., Kansas City 5, Mo. Equipment: 5 DC-3's; 12 DC-4's; 32 Lockheed 049's; 12 Lockheed 749's; 9 Lockheed 1049's; 27 Lockheed 749-A's; 22 Lockheed 1949G's; 11 Martin 202-A's; 38 Martin 404's; 1 Fairchild C-82; 6 C-54's.

TRANS-PACIFIC AIRLINES, LTD., Box 3769, Honolulu, T.H. Equipment: 8 DC-3's.

TRANS-TEXAS AIRWAYS, International Airport, Houston 17, Texas. 18 DC-3's.

UNITED AIR LINES, INC., 5959 S. Cicero Ave., Chicago 38, Ill. Equipment: 5 DC-6A cargoliners; 5 DC-4 coaches; 27 DC-7 mainliners; 33 DC-6 and DC-6B coaches; 39 DC-6 and DC-6B mainliners; 54 convair mainliners.

URABA, MEDELLIN & CENTRAL AIRWAYS, INC., 135 E. 42nd St., New York, N. Y.

WEST COAST AIRLINES, INC., Boeing Field, Seattle 8, Wash. Equipment: 14 DC-3's.

WESTERN AIR LINES, INC., 6060 Avion Drive, Box 45,005, Airport Station, Los Angeles 45, Calif. Equipment: 7 DC-3's; 3 DC-4's; 9 Convair-Liners; 14 DC-6B's.

WIEN ALASKA AIRLINES, INC., Box 649, Fairbanks, Alaska, Equipment: 4 C-46's; 2 DC-3's; 6 Noorduyn's; 2 Cessna 195's; 6 Cessna 170's; 1 Cessna 180.

Supplemental

AERO FINANCE CORP., Box 481, Miami Springs, Fla.

CARGO EXPRESS, INC., Box 31, Boeing Field, Seattle, Wash.

AIR SERVICES, INC., 3938 Wilshire Blvd., Los Angeles 5, Calif.

ALL-AMERICAN AIRWAYS, INC., Box 182, Airport Br., Miami 48, Fla.

AMERICAN FLYERS AIRLINE CORP., Meacham Field, Ft. Worth, Texas

ARCTIC-PACIFIC, INC., Box 1028, Anchorage, Alaska

ARGONAUT AIRWAYS CORP., Box 627, International Airport Br., Miami 48, Fla.

ASSOCIATED AIR TRANSPORT, INC., Box 932, Miami 48, Fla.

BLATZ AIRLINES, INC., 3132 W. 74th St., Los Angeles 43, Calif.

CALIFORNIA AIR CHARTER, INC., Lockheed Air Terminal, Burbank, Calif.

CALIFORNIA HAWAIIAN AIR LINES, Lockheed Air Terminal, Burbank, Calif.

CAPITOL AIRWAYS, INC., Berry Field, Nashville, Tenn.

CENTRAL AIR TRANSPORT, INC., Lockheed Air Terminal, Burbank, Calif.

COASTAL CARGO CO., INC., Mercer County Airport, Box 495, Trenton, N. J.

CONNER AIR LINES INC., Box 587, Miami Springs, Fla.

CONTINENTAL CHARTERS, INC., Box 145, Miami 48, Fla.

CURREY AIR TRANSPORT, LTD., Oakland Municipal Airport, Oakland, Calif.

GENERAL AIRWAYS, INC., 10000 N. E. 47th Ave., Portland Airport, Portland, Ore.

GREAT LAKES AIRLINES, INC., Lockheed Air Terminal, Burbank Calif.

JOHNSON FLYING SERVICE, INC., Box 1382, Missoula, Mont.

LOS ANGELES AIR SERVICE, INC., Municipal Airport, Hawthorne, Calif.

PAUL MANTZ AIR SERVICES, Orange County Airport, Santa Ana, Calif.

METEOR AIR TRANSPORT, INC., Teterboro Airport, Teterboro, N. J.

MIAMI AIRLINE, INC., Box 165, International Airport Br., Miami 48, Fla.

MODERN AIR TRANSPORT, INC., Newark Airport, Newark 5, N. J.

MONARCH AIR SERVICE, 6054 S. Cicero, Municipal Airport, Chicago 38, Ill.

OVERSEAS NATIONAL AIRWAYS, International Airport, Oakland, Calif.

PENINSULAR AIR TRANSPORT, Box 707, Miami Springs, Fla.

QUAKER CITY AIRWAYS, INC., North Philadelphia Airport, Philadelphia 36, Pa.

REGINA CARGO AIRLINES, INC., Box 675, Miami Springs, Fla.

S. S. W., INC., Hangar 3, Lockheed Air Terminal, Burbank, Calif.

SOURDOUGH AIR TRANSPORT, Box 54, Boeing Field, Seattle 8, Wash.

SOUTHERN AIR TRANSPORT, INC., Box 114, Miami Airport, Miami 48, Fla.

STANDARD AIRWAYS, Lindbergh Field, San Diego 1, Calif.

TRANS-ALASKAN AIRLINES, INC., 3017 Calle Noguerra, Santa Barbara, Calif.

TRANS CARIBBEAN AIRWAYS, INC., 200 W. 57th St., New York 19, N. Y.

TRANS NATIONAL AIRLINES, Lockheed Air Terminal, Burbank, Calif.

TRANSOCEAN AIR LINES, Oakland International Airport, Oakland 14, Calif.

THE UNIT EXPORT CO., INC., Lockheed Air Terminal, Burbank, Calif.

U. S. AIRCOACH, Lockheed Air Terminal, Burbank, Calif.

UNITED STATES OVERSEAS AIRLINES, INC., Cape May County Airport, Wildwood, N. J.

WESTAIR TRANSPORT, Box 40, Boeing Field, Seattle, Wash.

WORLD AIRWAYS, INC., Oakland International Airport, Oakland 48, Calif.

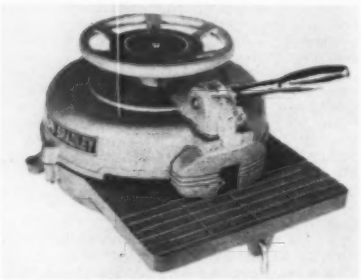
WORLD WIDE AIRLINES, INC., Box 365, International Airport Br., Miami 48.

DA NEW PRODUCTS

. . . . FOR FURTHER INFORMATION

Stencil Machine

A machine to cut ⅜-in characters in oil board has been added to the

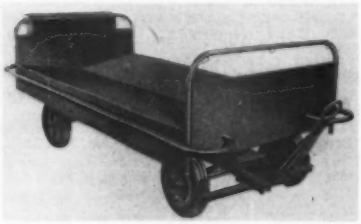


Diagraph-Bradley Speedmodel line of stencil cutting machines This machine will cut 7 lines, 38 characters to the foot, any length. It has lightweight internal castings, high carbon punches and dies, and ball bearing construction.

Circle 50 on Card Facing Page 83

All-Purpose Truck

A new four-wheel truck for use in carrying baggage at airport terminals and for other handling situations has been developed by **Lewis-Shepard Products, Inc.** Available in capacities to 2000 lb, the truck can either be pulled manually or by a tractor. The front-wheel brakes on the truck automatically apply when the pulling handle is raised to vertical position, while lowering the handle disengages the brake. Overall dimensions of the

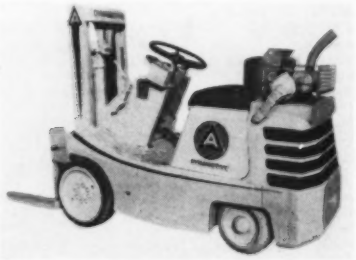


truck are 40-in. high, 96-in. long, and 52-in. wide. The V-type deck has a four-inch slope, and is 24-in. from ground level.

Circle 51 on Card Facing Page 83

Exhaust Purifier

Automatic Transportation Co.'s line of Dynamotive industrial trucks now is available equipped with an Oxy-Muffler Catalytic exhaust purifier.

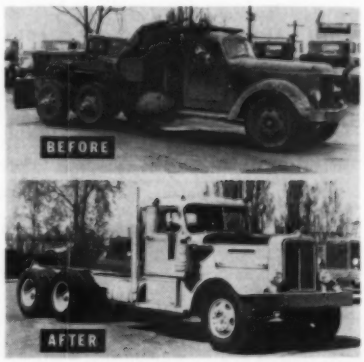


This unit reduces the amounts of organic material and carbon monoxide in the exhaust gases. The muffler is mounted horizontally on the back of the counterweight.

Circle 52 on Card Facing Page 83

Truck Rebuild Kits

A new rebuild kit—consisting of current-model production parts—can be used to rehabilitate any make of truck comparable to Autocar six-



wheel diesel models DC 10264 and DC 10264 L (lightweight). Providing all parts for a completely new Autocar chassis without power train (engine, clutch, transmission, drive line and front and rear axle assemblies), the kit is produced by **Autocar Div. White Motor Co.** Total cost of rebuilding a typical truck with kit averages from $5,400 to $6,500. This includes cost of the kit, selected optional parts and labor. The price of a comparable new truck would be approximately $15,000.

Circle 53 on Card Facing Page 83

Watchmen's Clocks

Detex Watchclock Corp. has announced an improved line of watchmen's clocks for specific warehouse or plant requirements. It includes a selection of systems designed to solve any protection problem. Included are



models which provide mechanical supervision of watchmen on weekends and extended holidays.

Circle 54 on Card Facing Page 83

3000-5000-lb Lever Dolly

Several notable features are incorporated in the new **BECO** Super-Lift lever dolly. By streamlining, using a wheel-axle lock, which eliminates projecting axles and cotterpins, the danger of snagging lading and equipment is removed. Stronger, tougher nose plates and Permaset bolts that do not work loose or drop



out insure a safer, more expedient handling. The BECO dollies, with capacities from 3000 to over 5000 lb, are unconditionally guaranteed.

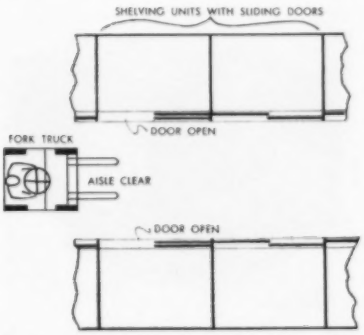
Circle 55 on Card Facing Page 83

and EQUIPMENT

PLEASE USE THE READERS' SERVICE CARD • • PAGE 83

Sliding Doors

Standard Pressed Steel Co. has announced a new line of sliding doors that can save up to 3 ft of aisle space and reduce noise and maintenance costs at the same time. Available as a standard accessory for the company's line of steel shelving and cab-



inets, the doors eliminate bumping hazards and reduce damage often incurred when swinging doors on cabinets or shelving are hit by lift trucks or people walking by. Nylon rollers and guides reduce noise, and eliminate oiling and other maintenance needed on the hinges of swinging doors.

Circle 56 on Card Facing Page 83

Hydraulic Hand-Lift Truck

The illustration shows the new **Barrett-Cravens** HJ hydraulic hand-lift truck. The truck is equipped with a compact hydraulic lift system, designed expressly for it and placed in an out-of-way location. Model HJ, requires only six strokes of the handle

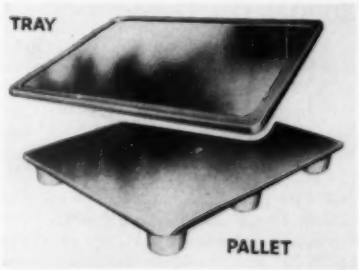


to raise a capacity load of 2500 lb to the truck's full lifting height of 3 in. Companion model HR has a capacity of 4000 lb, and requires ten strokes to raise a capacity load.

Circle 57 on Card Facing Page 83

Plastic Pallets

The Paltier Corp. announces a new line of plastic pallets, skids, shipping trays, assembly line trays and flexible



stacking Paltiers. Some of the advantages claimed are: elimination of maintenance; no nails, screws, bolts, cracks, or protrusions to contend with; lightweight—23 lbs for 40 x 48-in pallet; uniform weight, permitting simplified load inventory.

Circle 58 on Card Facing Page 83

Carton Clamp

The Yale & Towne Mfg. Co. has announced a carton clamp featured by a new narrow arm design which permits closer stacking of cartons and better use of storage space. Articulation is accomplished through the de-



flected metal construction of the arm. This design eliminates the need for bulky articulation arrangements on the outside of the clamp arm. In order to achieve maximum pay load capacity with the new clamp, the clamp pads, two on each arm, are made of aluminum. The actual clamping surface is rough top rubber bonded to a thin metal sheet. The clamp can be built with pad reach up to 54 in. In the case of this maximum outreach model, each pad would measure 26 in. Standard pad height is 48 in.

Circle 59 on Card Facing Page 83

Battery-Powered Fork Truck

A new battery-powered fork truck of 1500-lb capacity weighing slightly over 4000 lb with battery is available from the **Industrial Truck Div., Clark Equipment Co.** Named the Electric Clipper 1524, the machine will travel 6.3 mph loaded, has a lift speed of

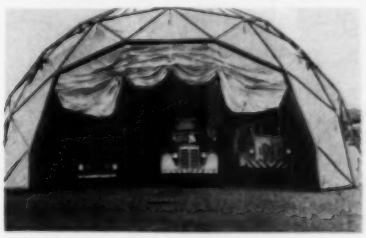


43 fpm loaded and will climb a ten per cent grade. Minimum aisle for right-angle stacking is 71½ inches plus load length. A finger-tip lever on the steering column controls forward and reverse direction and automatically puts the machine into first point of power. The lever returns to neutral when the driver leaves his seat. Fast, smooth acceleration is automatic.

Circle 60 on Card Facing Page 83

Portable Shelters

Geodesic shelters, built by **Magnesium Products of Milwaukee,** are claimed to be the answer to many immediate, emergency and even long range needs for all-weather structures for a variety of uses. In a matter of hours temporary or semi-permanent



shelter can be provided. They are made in a variety of sizes, ranging from 20 ft to 114 ft diameter, the shelters are lightweight. Disassembled, they can be transported by common carrier.

Circle 61 on Card Facing Page 83

(*Please Turn Page*)

DA NEW PRODUCTS and EQUIPMENT

CONTINUED FROM PREVIOUS PAGE

Steel Work Bench

Newly designed steel work benches featuring double drawer section, drawers and cabinet, double cabinets and sliding-door, enclosed storage beneath

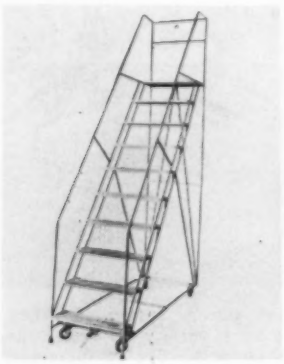


work surface, have been added to the line of Modern-Flow steel work benches by **Equipto Div. Aurora Equipment.** Construction is heavy enough to accommodate powered machinery.

Circle 62 on Card Facing Page 83

12-Step Safety Ladder

A new, easy-to-lock line of ladders from 8 to 12 steps, that roll to any location for reaching high places safely has been developed by **Tri-Metal Ladder Co.** This line has a new locking feature that raises casters



and lowers the front legs of the ladders, locking them securely to the floor to prevent tilting, swaying and slipping.

Circle 63 on Card Facing Page 83

2000-lb Gas Truck

A pneumatic-tired 2000-lb model has been added to its line of gasoline or LPG-powered fork lift trucks by the **Baker-Raulang Co.** The FGF-20 has a turning radius of 71 in., and turns into a minimum intersecting aisle 65 in. wide. Overall length without forks is 72¾ in. A low profile makes the FGF-20 easy for the operator to board. Other features for operator convenience include automotive-type steering and controls, low accelerator angle, minimum steering and clutch effort, and absence of cowl



for maximum visibility. Features for ease of maintenance include self-adjusting brakes, split-bell clutch housing, and wide-angle engine compartment opening.

Circle 64 on Card Facing Page 83

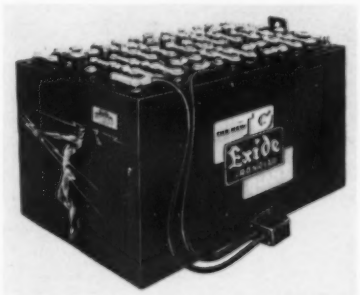
Truck Crane

An all-new universal-fit crane that fits any new or used 1½-ton truck has been introduced by **Sherman Products, Inc.** The crane attaches to any 1½-ton truck (or larger) having a minimum cab-to-rear axle measurement of 92-in., or more, with six "U" bolts. It moves 30 yards of dirt an hour as dragline. The crane travels at the truck's own speed. It has a minimum boom of 20 ft, and a maximum of 40 ft. The standard boom is 25 ft.

Circle 65 on Card Facing Page 83

Increased Capacity Batteries

A basic scientific development engineered by **Exide Industrial Div., the Electric Storage Battery Co.,** has enabled the manufacturer to pack more storage battery power into a given space—an increase of 44 per cent in the rated capacity of motive power batteries. The increase is accomplished through the use of a new armored porous tubing to encase the grid spines and active material of the positive battery plates. Users of handling equipment now can select a battery which utilizes this latest development—the new type TG Exide-Ironclad Giant. It has the highest ampere-hour per cubic-inch rating on the motive power. A 2000-lb truck, for example, now using an 18-cell, 36-

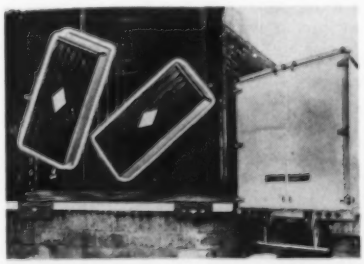


volt, 360 ampere-hour battery with 13 plates per cell, can be equipped with a new TG Giant, also having 13 plates per cell, but rated at 432 ampere-hours. Or, the truck can be equipped with a new 11-plate TG battery, having the same 360 ampere-hour capacity.

Circle 66 on Card Facing Page 83

Rubber Bumper Block

Castle Rubber Co. is marketing a new type of rubber bumper block called the Cushioner. It was designed for materials handling facilities and equipment such as loading and re-



ceiving docks and truck frames. The main function of the block is to protect this equipment, as well as merchandise in transit, from the damaging effect of vehicle contact. It is manufactured in two styles: one bonded to a steel plate for welding attachment, and one unbonded for bolt attachment. Several standard sizes are available.

Circle 67 on Card Facing Page 83

Walkie Electric Truck

A control system for walkie electric trucks offering both dynamic braking and controlled plugging is available on its complete walkie line, **Lewis-Shepard Products, Inc.**, has announced. Designated the L-S Roto-Cam Control, it is offered as standard equipment on all L-S high-lift and low-lift walkies. With controlled plugging, the truck when traveling in either forward or reverse direction, will come to a smooth stop and then pick up speed in the opposite direction when the control grip is reversed. Wear-and-tear on the truck's motor is thereby reduced. Dynamic braking, which applies with the truck traveling in either forward or reverse, allows the truck to come to a slow,



gradual stop when the control handle is released or allowed to return to vertical position.

Circle 68 on Card Facing Page 83

Air-Powered Stretcher

The new Model WN-114 air-powered stretcher, now available from the **Signode Steel Strapping Co.**, easily tensions 1¼-in. heavy duty steel strapping. This lightweight tool lets air power do the hard work of ten-

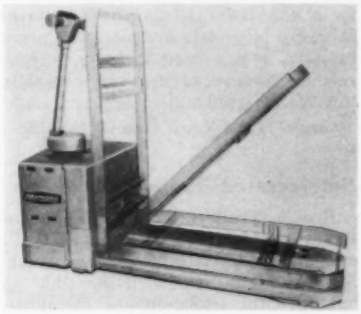


sioning strapping on crates, skids, coil stock and freight car bracing. The WN-114 provides up to 3900 lbs of predetermined tension. Special features include a cutter attachment that cuts off excess steel strapping, and a rolling gripper.

Circle 69 on Card Facing Page 83

Skid Adapter

A skid adapter has been designed by **The Raymond Corp.** for its 24-volt electric walkie truck, allowing it to handle both skids and pallets with loads up to 4000 lb. The steel frame of the adapter is locked in an upright position when the truck is moving pallets. To handle skids the operator releases the lock, letting the skid



adapter swing down into position over the forks. The adapters can be furnished to handle skids of any standard underclearance and have the same dimensions as the forks. Forks are offered in 24, 27, and 30-in. widths and 30 to 60-in. lengths.

Circle 70 on Card Facing Page 83

IDP Typewriter

Remington Rand has announced a new electronic punched tape typewriter. A logical development of the common language concept, on which integrated data-processing is based, the new machine automatically creates and reads the paper tape that

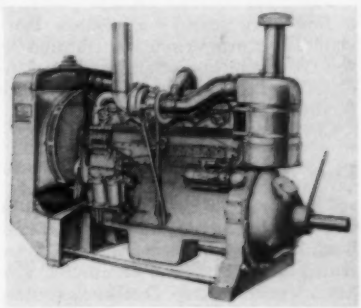


activates other equipment and wire communications systems When used as an ordinary electric typewriter in preparing source documents, it automatically translates everything or selected data the typist writes into a punched tape for subsequent automatic processing. When fed the punched tape prepared by it or other machines, it automatically reads and types out the information at the rate of 120 words a minute.

Circle 71 on Card Facing Page 83

Turbocharged Power Unit

International Harvester Co. has entered the turbocharged engine field with its new 250 hp Turbotorque UDT-1091 power unit. This 250 brake horsepower rating is attained at 1500 rpm, an increase of 50 hp over its naturally-aspirated counterpart, the UD-1091, previous top-hp unit in the International line of 18 power units. The new 6-cyl unit has all the features of the UD-1091, plus the advantages inherent in its turbocharger components. Its exhaust gas driven AiResearch turbocharger moves 60 per cent more air through the big

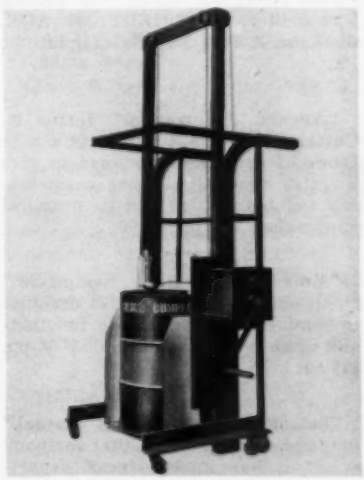


14-in diameter air cleaner. A water-cooled oil temperature stabilizer is standard equipment on the new unit.

Circle 72 on Card Facing Page 83

Hand Powered Dumper

The Cesco Jr. hand powered dumper was designed by **Essex Conveyors, Inc.**, for manufacturer with intermittent requirements for lifting and dumping operations or for processes that preclude the use of standard, motor-operated equipment. It is avail-



able as a single purpose dumper for bulk handling or as multi-purpose equipment for all types of material in a variety of containers. Various types of units for handling boxes, drums, bags, etc., can be attached to its fork-type arms.

Circle 73 on Card Facing Page 83

FREE LITERATURE

Merchandise Storage

The Neal Storage Co. has prepared a four-page folder on modern merchandise storage and distribution in the Cleveland area. Services listed include storage, cartage, branch office facilities, and display space.

Circle 75 on Card Facing Page 83

Port Directory

The Port of Seattle has prepared a new booklet on its distribution facilities. Installations described and illustrated include: Piers, terminals, airport, truck and rail facilities, routes, etc.

Circle 76 on Card Facing Page 83

Industrial Truck Line

Specifications for lift trucks, towing tractors and platform trucks are given in Bulletin BU-450 available from the **Buda Div., Allis-Chalmers Mfg.** Basic models are pictured in the bulletin, which also includes a load rating chart covering the complete line of lift trucks.

Circle 77 on Card Facing Page 83

Refrigerated Trailers

Brown Trailers announces a new folder on refrigerated aluminum trailers. The folder tells how new insulating techniques made it possible to haul greater loads, longer distances, with greater safety.

Circle 78 on Card Facing Page 83

Marine Terminal Facilities

A new marine brochure, published by **North Pier Terminal,** details four of Chicago's most strategically located marine terminals. It tells how world-wide and Great Lakes shippers can use Chicago's waterways, and rail and truck facilities to best advantage. Storage and distribution facilities are described and illustrated.

Circle 79 on Card Facing Page 83

Steel Shelving

New Hallowell Erectomatic steel shelving featuring a built-in shelf-locking device for faster erection and subsequent disassembly and repositioning is covered in a new four-page bulletin of **Standard Pressed Steel Co.** The illustrated bulletin details the locking action in closeup photos and shows other construction features that permit straight in-and-out shelf change, independent shelf positioning, and full use of shelf area.

Circle 80 on Card Facing Page 83

Shop Accessories

Sturdi-Bilt Steel Products, Inc., has announced innovations and expansions in their work bench and shop accessories line. Products now include heavy-duty unit work benches, heavy-duty pedestal and continuous work bench and utility table, work bench drawers, steel risers, steel backs and end rails, work bench illuminators and power-strips, adjustable shop tenders and accesories, and multiple drawer shop tenders.

Circle 81 on Card Facing Page 83

Shipping and Storage Supplies

Elkay Products Co. announces the new 1957-58 edition of its catalog of moving, shipping and storage supplies. It includes 1100 items. Featured are complete lines of moving van pads, furniture and appliance covers, straps, ties, dollies, casters, appliance and hand trucks, etc.

Circle 82 on Card Facing Page 83

Shipping Label Guide

A new guide to modern shipping label design has just been published by **Allen Hollander Co.** The guide illustrates 16 new shipping label designs. Each design is available in one or two colors and in four different sizes.

Circle 83 on Card Facing Page 83

BOOKS

Chilton's Physical Distribution Library

Following is a brief description of **Chilton Co.** books on various phases of physical distribution. Information on all books can be had by writing The Editor, **DISTRIBUTION AGE,** Chestnut & 56th St., Philadelphia 39, Pa.

"Applied Automation," James A. Custer. Facts on automation in a wide range of operations designed to give a better knowledge of the basic concepts of automation and its practical application. 236 pp, $6.00.

"Materials Handling Equipment," D. Oliphant Haynes. A text designed to show how each machine functions and what it is designed to do. 636 pp, $17.50.

"Industrial Storeskeeping Manual," Benjamin Melnitsky. Actual company practices for cutting stores' department costs, improving departmental efficiency and using modern techniques of management in day-to-day store operations for greater profits and efficiency. 279 pp, $6.00.

"Applied Methods - Time Measurement," Malcolm H. Gotterer. Results of the most up-to-date studies in MTM for anyone interested in measurement and production standards. $6.00.

"Butane-Propane Power Manual," Carl Abell. This is a complete technical guide on LP-gas carburetion from basic engine facts to selling. 360 pp, $5.00.

"Management of Industrial Inventory," Benjamin Melnitsky. This book contains practical data on every phase of inventory control along with actual case studies. 286 pp, $4.75.

"Motion and Time Study Manual," James A. Parton, Jr. This book presents a workable program of motion and time study along with methods for using the data collected. 416 pp, $5.50.

"Traffic Department Organization," John H. Frederick. This is a series of actual case studies showing how traffic management works cooperatively with other company divisions to reduce costs of distribution and place products at the effective points of consumption at prices the consumer can afford to pay. 142 pp, $6.00.

Tractor Loaders

A new bulletin by **Tractomotive Corp.**, describes its complete line of front-end wheel loaders. Illustrations and complete specifications are included on five basic models.

Circle 84 on Card Facing Page 83

Shipping Container Leaflet

A re-usable plywood shipping container is the subject of a leaflet prepared by **Auto-Stack.** The product is shown in transportation, warehousing, and materials handling applications. It is put together in 22 minutes and knocked down in 3 minutes, the brochure says.

Circle 85 on Card Facing Page 83

Emergency Power Systems

Staying in operation when power fails is the theme of a new booklet by **Caterpillar Tractor Co.**, "Power for Protection." The complete line of Caterpillar Diesel Electric Sets is listed with horsepower and kilowatt ratings.

Circle 86 on Card Facing Page 83

Strapping Tape Booklet

Dutch Brand Div. of Johns-Manville has prepared an illustrated booklet describing the uses and advantages of their 250-lb tensile strength strapping tape. It is complete with illustrations, technical data, performance specifications, descriptive test, drawings and photos.

Circle 87 on Card Facing Page 83

5000-6000-lb Gas Fork Trucks

Gasoline or LPG-powered fork lift trucks with capacities of 5000 and 6000 lb are described in two new bulletins available from the **Baker-Raulang Co.** Bulletin 1348A covers the Model FG-60, and Bulletin 1395 covers the Model FG-50. They are two models in Baker's FG series, which includes models ranging from 2000 to 7000 lb capacity.

Circle 88 on Card Facing Page 83

Prefabricated Buildings

Prefabricated steel and aluminum buildings ranging up to factory and warehouse size are featured in a new eight-page brochure prepared by **H. L. Vokes Co.** Fundamental advantages of prefabricated metal buildings and construction details are explained.

Circle 89 on Card Facing Page 83

Concrete Products Handling

"Effective Ideas for Handling Concrete Products" is the title of a booklet prepared by the **Hyster Co.** Descriptive pictures show efficient techniques for handling block, pipe, and precast products.

Circle 90 on Card Facing Page 83

Lift Truck Bulletin

An illustrated, four-page bulletin describing Tubar lift trucks and materials handling equipment is being offered by **Uhrden, Inc.** It lists specifications and details of electric and manual lifting, stacking and dumping equipment.

Circle 91 on Card Facing Page 83

Low-Headroom Lift Truck

A new fork truck specifically designed for use where headroom is low is introduced by the **Elwell - Parker Co.** in a new folder. The 3000-lb capacity model is electric powered. Height reduction is made possible by lowering the operators seat. A new design frame makes this possible.

Circle 92 on Card Facing Page 83

BOOKS

Container Marking

"Preservation of the Exterior Surfaces of Wooden Shipping Containers to Retain Identification Symbols in Long-Term Outdoor Storage," H. W. Eickner and E. A. Mraz. This is a report of outdoor field tests conducted on wooden containers to determine the best long-term marking material. Order PB 121666 from OTS, U. S. Dept. of Commerce, Washington 25, D. C. 25 pp, 75¢.

Powered Industrial Trucks

"Handbook of Powered Industrial Trucks." This manual covers selection, procedures and operation of all types of powered industrial trucks. Industrial Truck Association, 9th and F Sts., Washington 4, D. C. 94 pp, $5.00.

Distribution Cost Analysis

"The Values and Uses of Distribution Cost Analysis," Dr. Donald R. Longman and committee. This is the second in the "Marketing for Executives" series and points out the effective tools which can be used by management to reduce distribution costs. The American Marketing Association, 27 E. Monroe St., Chicago 3, Ill. 6 pp, 25¢.

Marine Cargo Handling

"Shipboard Cranes and Burtoning Gear," Maritime Cargo Transportation Conference of the National Academy of Sciences. The study compares the operation of rotating cranes with orthodox boom and winch equipment. Office of Sales and Distribution, Room 6329 Commerce Dept. Building, Washington 25, D. C. $1.00.

Permanent Dock Boards

Magline Inc. has published a bulletin on Perma-Docks—a new line of standard magnesium dock boards for installation on concrete docks. Bulletin DB-215 presents Perma-Docks as an answer to problems involved in the installation of permanent-type dock levelers. It describes how these light units self-adjust to truck or trailer floor levels automatically.

Circle 93 on Card Facing Page 83

Automatic Car Unloading

An improved pneumatic conveying system for rapidly unloading cars of dry pulverized and granular materials has been announced by **Sprout, Waldron & Co., Inc.** It is a negative pressure or vacuum system in which the centrifugal fan is located on the opposite side of the collector from the material conveying line so that the product does not pass through the fan.

Circle 94 on Card Facing Page 83

Straddle-Type Trailer

Specification sheets and application illustrations of a recently-introduced straddle-type trailer are now available from the **Mighty Mover Straddle Trailer Co.** This trailer picks up a shipment from ground level and moves it over the road to its destination. Its gross vehicle weight is about 9000 lb. The length is 30 ft.

Circle 95 on Card Facing Page 83

LPG Conversion

Step-by-step instructions presenting all information necessary to convert industrial trucks to LP-gas operation have been published in a two-color illustrated folder, available from **Beam Products Mfg. Co.**

Circle 96 on Card Facing Page 83

Package Engineering

Container Laboratories, Inc., has published a 16-page color brochure outlining its services in the field of packaging consultants. In addition to consulting, these services include research and development, design and engineering, testing, and special studies.

Circle 97 on Card Facing Page 83

Portable Elevators

Barrett-Cravens Co. has issued Bulletin 558 on its most recent portable elevator developments: Model FH 7.5 foot operated, and Model BH 7.5 battery-operated. The foot-operated model provides lifting the load by the pressure of the operator's foot on a treadle, actuating a hydraulic lift unit. The battery-operated model lifts loads up to 75 lb with the flip of a lever.

Circle 98 on Card Facing Page 83

Air Freight Logs . . .

(Continued from Page 37)

classes of traffic. The value of speed both for mail and passengers is self-evident. In the case of freight, however, only a minor portion of the total market for the service is significantly and directly benefited by speed. Even for these movements, the benefits are not always readily apparent without a considerable period of active promotion, development, and experiment.

Air Freight Speed-up

The combination airlines had looked forward to developing their freight services over a period of time as equipment especially designed for such services became available, as costs became known, and as rates could be established. They had not expected to have to hurry about any of these matters.

Events, however, moved swiftly led by thousands of ex-servicemen, flyers and nonflyers alike, determined to get into the air freight business after they had seen what could be done in carrying things by air during World War II. Combined with this more or less natural desire to make some use of their war-time training was the sudden availability of transport-type aircraft, chiefly C-47's, the Army version of the familiar DC-3.

A tremendous increase took place in the number of air freight carriers. Most of these operated on a contract or nonscheduled basis. Activities of these newcomers proved that air freight could be developed. The airlines were forced to push their plans ahead, perhaps by several years, and get into the real air freight business before they were as well prepared as they might have liked.

No one knows exactly how many noncertificated air freight carriers went into business during 1945 and 1946. It has been estimated that there were as many as 150 exclusive carriers of this traffic, in addition to the combination airlines, operating at one time or another during these years.

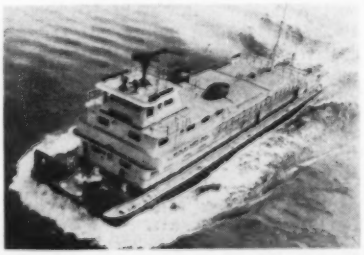
In June, 1947, the CAB finally faced up to the situation. It permitted those operators who had been engaged in the transport of property as of May 4, of that year, and who had applied to the Board for certificates of convenience and necessity, to operate as common carriers until the Board had acted upon their applications.

Temporary Certification

Finally, in 1949, four of these carriers were temporarily certificated as air cargo airlines: Slick Airways, The Flying Tiger Line, U. S. Airlines, and Airnews. Later, in 1951, Riddle Aviation obtained a temporary certificate. In 1956, American Air Export Import Co. was authorized. Certificates ran for five years and have since been renewed for all except AAXICO, Inc. and Airnews, which latter company never really operated. A bill now is pending in Congress which would grant the four all freight carriers permanent certificates of convenience and necessity.

Despite the growth in air freight since the close of World War II, its rate of development has been disappointing to many forecasters who had seen a much more rapid increase. Several factors account for this situation.

Two Towboats Christened



The Craig M and its sistership, the Lynn B, are the newest diesel towboats in the fleet of A. L. Mechling Barge Lines, Inc. The 148-ft craft were christened recently in Joliet, Ill. Each is powered by twin engines developing 2560 hp. The boats have a 34-ft beam and a normal draft of 8 ft

Probably the most important is that air freight transportation was a new industry at the time when most of the predictions were made. Not enough data were available on which to base any reliable projection. Thus the forecasts reflected the optimism or pessimism, as the case might be, with which an individual forecaster viewed the future and his own assumptions regarding the interaction of such factors as:

1. The amount of existing traffic which could be diverted from surface carriers;
2. The amount of new traffic which air transportation could generate;
3. The possible future of the nonscheduled air carriers;
4. The type of specialized cargo aircraft that might become available;
5. The rate structure which air transport would be able to operate under; and
6. The type of commodities which might profit most from air shipment.

Many of the forecasters also overestimated the rapidity with which air transportation would penetrate the assumed potential. For example, it was thought generally that there would be a fairly rapid diversion of traffic from railway express, recognized to be highly competitive with air freight service. While railway express traffic has been the source of the largest part of air freight, this penetration has been much lower than was anticipated.

A large potential was estimated by certain forecasters in fresh fruit and vegetables, sea foods, and other perishables. This potential has never been realized fully. The air carriers have failed to recognize the relationship between air transportation and the marketing problems inherent in perishable traffic.

Shipper Selectivity

Air freight cannot compete with surface agencies on the basis of rates alone. Shippers, however, will use air wherever its speed can produce values translatable into the price consumers are, or will be, willing to pay. They will also use air transportation if their to-

tal distribution costs can be reduced in an amount greater than the difference between air rates and those charged by surface carriers. Conceivably the shipper of any product able to fit into an airplane may, under certain conditions, find the speed of air transportation worth its extra cost.

Air freight will, in many cases, offer shippers certain ways to reduce distribution or financing costs. Interest charges on money invested in valuable articles while in transit will be lessened. Money invested in inventories of many types also will be reduced.

Savings in weight of packing and crating may also cut the over-all cost differential between air and surface transportation. New packaging methods are being developed for this purpose. Such a narrowing of the cost differential, however, is likely to be gradual. Packing for air freight may require just as much strength as that for motor transport because of ground handling at both ends of the haul.

The possibilities of extending market areas through the speed of air transportation may also encourage its greater use. This factor has been explored in the field of perishable commodities. Less time in transit permits products to remain in prime salable condition for a longer period after reaching distant markets.

Promotion Needed

There is still a big promotional job for the air carriers to do if air freight is to become of ever increasing volume and importance. Too many traffic executives still are unaware of how its use can fit into their distribution plans.

Much also depends on the rate structure. This is closely tied in with the type of cargo carrying aircraft which may become available. Reliability of airline service is improving steadily and this will continue as improved traffic control on our airways becomes an actuality. Ground handling and airport facilities also must be improved to reduce the proportion of total transit time now taken up at both ends of the airline haul. Much can be accomplished here through proper materials handling developments as well as closer cooperation between air carriers and motor carriers.

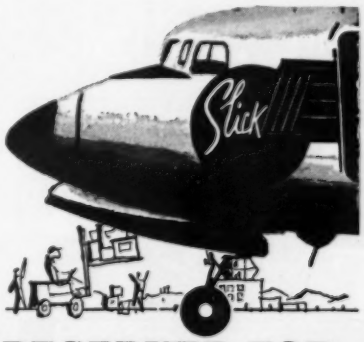
Economic Importance

It is probable that the importance of air freight in the nation's commerce will never be measurable in terms of its contribution in ton-miles to total intercity traffic. Rather, its importance to society will be measured in terms of unique benefits — chiefly arising from its speed—to certain industries in particular and to commerce in general.

In many industries, the speed and other advantages which air freight offers have made possible marked improvements in production and distribution methods, and in the quality of products. Eventually, it is hoped that these benefits will result in lower over-all cost to consumers.

To commerce in general, air freight has already shown its importance for emergency shipments of various kinds. It also has proved its value as a new competitive influence in transportation.•

(Resume Reading on Page 38)



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Circle 17 on Card Facing Page 83

Air Freight Forwarders . . .

(Continued from Page 69)

and sales agencies abroad, in order to provide an incentive for the foreign company to fully cooperate, it is desirable to be able to offer a full partnership in the joint enterprise. Such a partnership would divide the obligations of joint services and the benefits of joint rates.

3. Present regulations which prohibit forwarders from shipping in overseas or foreign air transportation except in aircraft operated by certified carriers, or under foreign air permits issued by the CAB, should be modified. International freight forwarders should be allowed to use supplemental air carriers for either charter or individual shipments. This would permit them to obtain additional airlift, particularly where there is such an imbalance.

4. Forwarders should be permitted to enter into agreements with airlines allowing sales commissions or discounts from established tariffs on consolidated shipments. This would place them on an even competitive footing with foreign forwarders who now receive such commissions.

5. Forwarders in the international field should be permitted to engage in joint-loading. Ordinarily they would suffer a loss on consolidations weighing less than 100 lb, being unable in such cases to take advantage of the spread involved in the over-100 lb bulk rate. However, if two forwarders each tendering a 50-lb consolidation could load jointly they would receive the benefit of the over-100 lb weight break and prorate the airline transportation charge in accordance with the respective proportion of the total consignment that each consolidation represented. This assumes that the tariff rates of both forwarders would be identical. Foreign forwarders use this system.

6. International freight forwarders should be permitted to act as airline agents and receive sales commissions. The reasons for restricting domestic freight forwarders from acting as agents of airlines and receiving commissions do not seem to apply internationally. An airline-forwarder agency relationship and an IATA cargo sales agency commission of five per cent have been a standard part of the international process.

Such a privilege would not unjustly penalize shippers. They would pay no more than the airline rate. The ability to act as agent for the carrier and earn the five per cent commission would remove the temptation, on the part of the forwarder, to hold a single shipment over in the hope of developing a consolidated shipment. Finally, a shipper's request for consignment via a particular airline would be more likely to be honored by the forwarder, even though no consolidation is possible, without the forwarder taking a loss. •

(Resume Reading on Page 70)



8796 TONNELE AVE., NORTH BERGEN, N. J.

Circle 18 on Card Facing Page 83

Military Overhauls . . .

(Continued from Page 71)

Some are poorly laid out. Others are open on one or more sides. They are too small. They have inadequate dock and rail sidings. They are not conveyerized.

The problem of bridging the gap between the surface carrier and the plane has not been solved. In addition, handling inside the plane still has a horse and buggy odor.

With aircraft such as the C-133, we cannot afford slow turnaround or ground time.

We are working on this problem. For example, we are studying three different mechanized terminal designs. We also are testing Lockheed loading bridges, which are powered conveyors of adjustable height. We intend to look at other methods, too.

We also are looking into all manner of equipment which may help to solve our handling problems inside the aircraft. Cargo nets help. Other aids include extra-strength magnesium flooring, roller conveyors in the floor, and pre-palletizing or unitizing loads that are bound for the same destination.

Packaging Problems

Closely related to ground handling is packaging. We package material for protection during both shipment and storage. Since air avoids the shock of rail shipment, and since airlift decreases the need for huge stockpiles of more expensive equipment, the necessity for heavy packaging is far less.

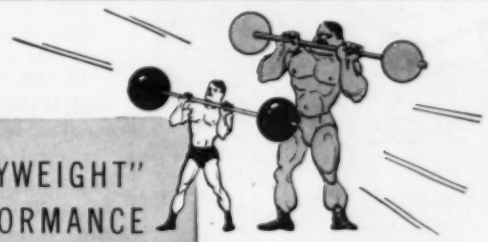
However, progress in this area is difficult because of the combination of different modes used during a single shipment. An item often will travel by surface from source to aerial port. It must therefore be packed for surface.

All too often the packaging line does not know how an item is going to be carried. It, therefore, is packed for the roughest mode and handling which may be encountered. Somewhere along the line the need for the item may become critical and it may be selected for air shipment. Since it arrives at the aerial port packed for surface shipment, there is a choice of shipping the heavy package, which itself may equal the net weight of the article, or of repackaging it.

For this reason the military is trying to work out a system reaching far enough back into the supply line to have these items packaged for air shipment. In this way we can save on the tare weight and cube. However, when we do this we must be capable of carrying the item to its destination completely by air.

Of course we do need adequate packaging to prevent loss and damage. Larger transports create the problem of compression loads from stacking cargo. The need, then, is for better and lighter materials.

(*Please Turn Page*)



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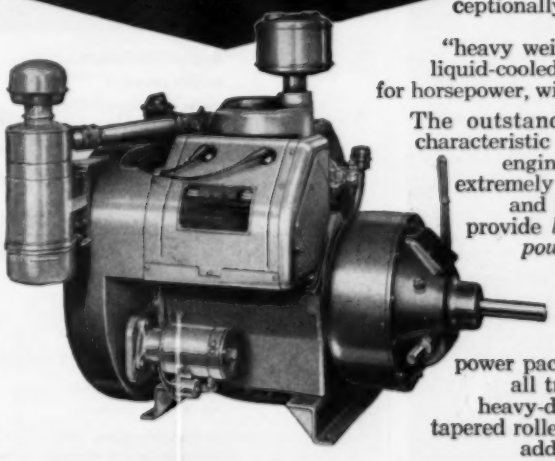
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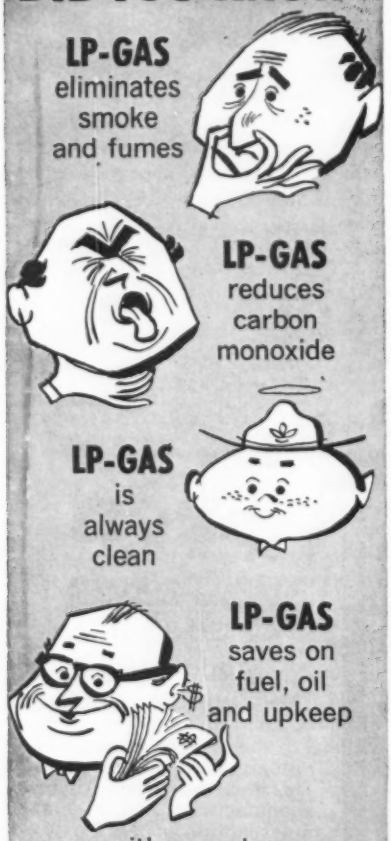
This new engine rounds out a complete line, comprising 15 models in 4-cycle single cylinder, 2- and 4-cylinder sizes, from 3 to 56 hp. Write for "Spec" Bulletin S-207.



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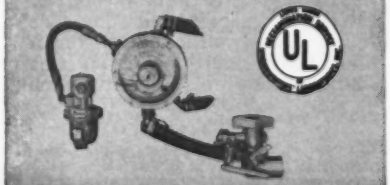
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Circle 20 on Card Facing Page 83

Military Overhauls . . .

(Continued from Preceding Page)

Although commercial aviation and the Air Force have different objectives in peacetime, both face the same problems in attaining those objectives. The commercial people must develop efficient systems of ground and air operations to get profitable use of aircraft. The military wants efficiency in peacetime to assure a working organization which will respond to our needs in an emergency.

Civil Air Fleet

In the event of war, the military transport fleet would be augmented by over 300 planes from the civil air fleet. These transports are the same as many now in military service. Because of this, we see no serious problem in integrating them into the military system under the Civil Reserve Air Fleet plan.

However, this would not necessarily be true of ground handling systems. The military and civilian systems may be different due to the nature and amount of cargo. Also, the Air Force is concentrating on cargo airlift. We are doing this because there is not enough civil cargo lift to satisfy large, military requirements. The largest civil airline carrier has less than 10 four-engine cargo aircraft.

While the Air Force is increasing the use of civil cargo airlift, the predominant shift is to let civilian lines fly military personnel. As the Air Force develops cargo handling around new transports, it will become somewhat more difficult to adapt the system to the Civil Reserve Air Fleet. Nevertheless, in time of war, many of those aircraft would be converted for cargo.

The Army plans to build some of its fighting units around airlift for fast deployment to "hot

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spots" that may develop. Also, airlift is needed to deploy B-47's of the Strategic Air Command. Both surface and air combat forces need to be resupplied with critical material by air. In an emergency this airlift would be needed within hours. We must have enough in being to satisfy D Day requirements.

Secondary Job

The remainder of the peacetime mission—providing air transportation for the Defense Department—is secondary and consistent with wartime readiness and the training it requires. If the Civil Reserve Air Fleet was larger or had more cargo transports, the military could plan on using it.

That is why it is hoped that civil carriers will become more interested in developing cargo transports for their own fleets, and gradually discard the sole use of passenger type aircraft for cargo.

Lower Cost

Civilian cargo airlift has not been exploited to the fullest, even with DC-4 and DC-6 equipment. As airfreight business rises with these transports, civil carriers still face ton-mile costs the same as the military. However, with an increased volume of freight, the carriers should be able to develop or buy cargo transports that will lower the ton-mile cost.

This is the first step toward greater efficiency. Quite logically, the second step is improved terminal handling.

Handling Paperwork

The Air Force has several projects in the works to give air cargo a shot in the arm. Under the present system we type a nine-copy airbill for each shipment. A manifest also is prepared for each flight, and we use other handwritten forms and printed labels. This wastes time and manpower.

The best effort so far has been to mechanize this procedure. As cargo arrives at the terminal, a copy of the shipping document is pulled and given a control number. A label with the same number is attached to the box.

Next, we punch a card using the shipping ticket as a guide. The card then goes into the cargo file. Then, to assemble a load for flight, all the cards from the cargo file for a particular destination are run through an accounting machine. This produces a preliminary cargo list. The machine is set to stop automatically at either the weight or cube limits of the ship to be loaded.

The list then goes to the intransit area. Here the load is gathered and double checked for completeness, packing, and weight. The cards then are resorted automatically according to priority and military consignee. Another machine makes the final manifest.

It took approximately eight hours to document 100 separate shipments "yesterday." "Tomorrow" the mechanized system will do the same job better in about an hour.

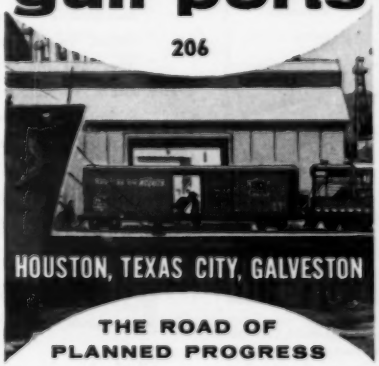
While this idea may not be practical for commercial carriers at this time, the day may not be far off when it will. •

(Resume Reading on Page 72)

Rock Island

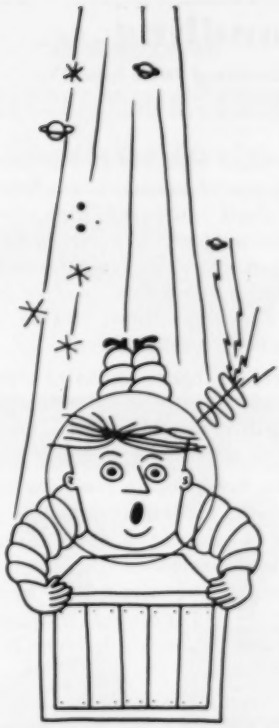
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Handling . . .

(Continued from Page 75)

passenger and freight terminals, each geared to maximum efficiency for their purpose; high-speed, multi-purpose ground handling equipment, and freight loading facilities at least as good as those now serving ships, trains and transport trucks.

The air cargo industry agrees that speed in loading and unloading will be the biggest key to success in operations of jets.

The first step in lowering costs is to stop loading freight like passengers—one at a time. Freight must be assembled into unit loads, either at the airport or by the shipper and grouped into plane load quantities for delivery to the aircraft.

Economical size of the unit load will grow with the size of cargo planes and increased air cargo volume. Studies indicate that large van-type containers, resembling those designed for interchangeable use aboard ships, trucks and trains, might well solve the speed problem.

Development Center engineers have completed preliminary designs of a self-loading transport truck to accommodate such vans. Forks would lift the load from the truck bed to the height of the aircraft floors, then push the load into the aircraft. A variation of the design would use a scissors lift instead of forks.

Ground towing of jet freighters will resemble that of passenger planes. Clark has several tractor studies under way, most promising of which calls for a vehicle of 25,000 to 30,000-lb drawbar pull to handle 350,000-lb gross weight planes. Towing in the near future of the jet age will be done with the conventional tow-bar. It will be confined to slow speeds—12 to 15 mph—from hanger to terminal or terminal to engine start area.

Positioning cargo inside an existing plane will be a major problem during the transition to aircraft designed as part of a unified materials handling system. Several approaches are practical. While these have present drawbacks because of added dead weight, they definitely speed up loading time.

One aircraft manufacturer has demonstrated installation of roller conveyors on the aircraft floor.

Clark recently delivered prototype models of an electric pallet hand truck to the U. S. Air Force. Weighing less than 1350 lb, the truck resembles a conventional 2000-lb capacity electric pallet truck, except that it operates off of the aircraft's 28 VDC electrical system by plug-in cable. A freewheeling control permits easy rolling when power is off.

There is no doubt a universal solution to the cargo handling problem can be worked out. It will require cooperative action by all persons involved in the future of the air freight industry.•

(Resume Reading on Page 76)

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- Performs work of 6 to 21 men with brooms.
- 24" & 36" models for efficient sweeping of narrow aisles & congested areas.
- Patented "DUSCON" dust control system reduces fire hazards, eliminates many rejects on production line, increases plant morale.
- Fingertip controls — detachable sulky — self propelled.

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WRITE FOR BULLETIN R-57

Wilshire POWER SWEEPERS

WILSHIRE Power Sweeper Company
Subsidiary of Elgin Sweeper Company
ELGIN, ILLINOIS • GLENDALE 4, CALIFORNIA

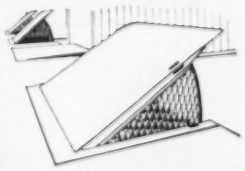
DISTRIBUTORS IN ALL PARTS OF THE U.S.A.
FOR CANADA: Plant Maintenance Equipment Ltd., Vancouver, Montreal, Toronto
FOR EXPORT: The HOMS Company, 44 Whitehall St., New York 4, N. Y.

Circle No. 22 on Card, Facing Page 83, for more information

LOADING DOCK PROBLEMS?

3 easy ways to solve them —and most economically, too!

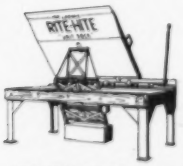
RITE • HITE mechanical loading ramps



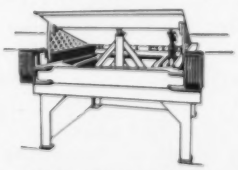
RECESSED RAMPS
Two standard, 60" x 60" and 72" x 72". Two flush-type, 72" x 72" and 96" x 72".

10-ton capacity

Practically no maintenance! Rite-Hite *precision counterbalanced* design eliminates troublesome cylinders, pumps, motors, starters, piping, valves, wiring, gears, cables. Rite-Hites are not affected by dirt, debris, extreme heat or cold. Easy to install—furnished complete, no "extras" to buy. All-welded heavy steel construction. You can be *sure*, when it's a Rite-Hite, it's right. Get full details—write Dept. D-87.



SELF-CONTAINED RAMP
For non-permanent installations. 72" x 72".



TRUCK-ACTUATED RAMPS
Two models, recessed and self contained, 96" x 72".

RITE-HITE DIVISION

LOOMIS MACHINE COMPANY
133 EAST FOURTH STREET, CLARE, MICHIGAN

Circle No. 23 on Card, Facing Page 83, for more information

Air Freight's Future . . .

(Continued from Page 78)

U. S. Air Force on development of a tilt-wing air transport. The tilt-wing plane, under contract to Hiller Helicopters, Palo Alto, Calif., will be propeller driven. It will be capable of vertical takeoffs and landings.

Airports

Standard airports also will continue to develop their facilities. In the case of air freight, this development may see other operations patterned after the cargo center at New York's International Airport. There space in five buildings is leased out to airlines for handling of shipments. A cargo service building houses the federal inspection services, freight forwarders, custom house brokers, a bonded warehouse, and pickup and delivery cartage companies. The 80-acre site provides parking aprons and truck loading platforms to permit simultaneous loading and unloading of 20 aircraft and more than 100 trucks.

Los Angeles, where a new passenger terminal is being constructed, will convert its present building into a cargo center.

More Electronics

Electronics, already at work in aviation, is promising to play a bigger role in the industry's future.

Pilots and navigators soon will be able to consult a map that is only 20 seconds old, made night or day in flight by radar.

A device called a radar strip recorder has been developed to present a photograph of the ground beneath the plane. Navigation to pin point accuracy is predicted by the Hycon Manufacturing Co., developer of it.

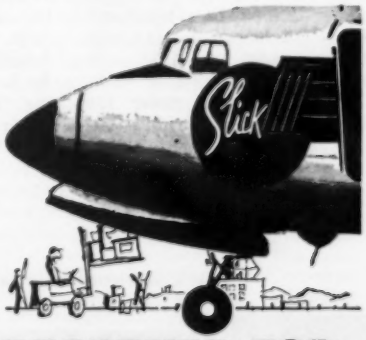
Greater use of electronic systems such as Remington Rand's Univac are foreseen in the field of weather forecasting and space reservations. Ultimately this type of control also will become a part of the government's traffic management system.

The development of these new aircraft, control mechanisms, and facilities represents many research projects spread around the world. However, full use of these will not be realized by the air freight shipper until they have been tied together in a coordinated system.

In traffic control, the CAA and the airlines can work out a coordinated plan. In freight handling, a science which must advance greatly before many commodities can move by air, the airlines, plane manufacturers, and shippers must work on the problems.

Unit loads and greater mechanization in handling would speed up takeoffs and cut manual labor. Present methods of moving separate boxes will come in for additional study as the jet age cuts flight time. •

(Resume Reading on Page 79)



RESERVED FOR YOUR CARGO!

- No bumping of cargo or off-loading for passengers
- Big plane capacity with all space reserved for your cargo
- Big doors to accommodate the largest shipments
- Strategically located stations — dedicated exclusively to rushing your goods to destination

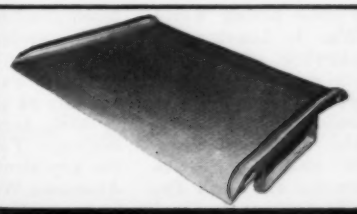
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Circle 24 on Card Facing Page 83

. . . . the Pioneers

(Continued from Page 43)

France during World War I. Leaving the service, he barnstormed for several years then helped Jack Northrop design the Lockheed Vega. He entered the Delta service through Pacific Seaboard.



S. C. KENNEDY, Hawaiian Airlines' president from 1929 to 1955, was a key figure in the company's founding. Kennedy is shown on November 11, 1929, on the day service was inaugurated. He is now Board chairman.



GEORGE SHEALY, Delta Air Lines captain, has been flying since 1926. His career includes barnstorming, daredevil flying, and B-29 raids over Tokyo. Shealy joined Delta in 1934.



JUAN TRIPPE entered aviation in 1917 while serving in the U. S. Navy. After a one-year career in banking he organized, in 1923, Long Island Airways. Today he is the president of Pan American World Airways, another of the lines he founded.



A. W. OLSON, an airline captain since 1929, has flown in the U. S., Canada, Mexico, Central and South America. A captain with Aloha Airline today, his duties include plane commander, check pilot, instrument instructor, flight training officer, flight officer and operations officer.



JAMES WYNNE, check pilot for Riddle Airlines, started flying in 1926. His career has included test flying, operating an aerial survey company, airway construction, and chief controller of traffic at Cleveland airport.



A. G. WOODLEY is the president and founder of Pacific Northern Airlines. Born in Elmira, N. Y., he entered aviation as an Air Corps cadet in 1928. In April, 1932, he started PNA under the name of Woodley Airways.



W. A. PATTERSON, president of United Air Lines, Inc., entered commercial aviation in 1929 with Boeing Airplane Co. He became a UAL vice president after Boeing entered the United group. In April, 1934, he became president.



C. H. DOLSON, vice president of operations of Delta Air Lines, has been with the company since 1934. A native of St. Louis, he learned to fly in 1926 while serving in the Navy. Later he was a test pilot for Curtiss.



D. R. MacLAREN, executive assistant to the president of Trans-Canada Air Lines at Vancouver, was an ace in World War I. After helping to form the Canadian Air Force, he entered commercial aviation.



D. E. POSTLE, vice president - research, Mohawk Airlines, has been a pilot since 1926. During World War II he represented the CAB on the Interdepartmental Air Traffic Control Board.

Air Communications Center



Air Express International has opened a three-way communications center at its terminal at New York International Airport. The center groups an air cargo fowarder's overseas cable system, domestic teletype network and customer information unit, shown above, takes pickup orders on overseas air cargo shipments

Within the LAW



By Leo T. Parker Legal Consultant, Distribution Age

WAREHOUSING

If a warehouseman moves goods to a new location, and they are destroyed by fire, is he liable?

A purchasing agent of a large corporation asked this question:

"Our corporation made arrangements with a warehouse company to store excess merchandise in a main warehouse building. Without our knowledge the warehouse company stored the goods in a leased building which burned. Our merchandise was destroyed. The warehouse company's counsel wrote us a letter that the warehouse company would not assume any liability because the fire was caused by young boys who broke into the building and set it afire for a 'thrill.' These boys watched the night watchman make his rounds and broke into the warehouse building immediately after the watchman left that part of the building. What is your opinion?"

The warehouse company is liable. Higher courts consistently hold that a person or corporation which stores goods in a warehouse has a right to know where the goods are stored. This is especially true where the warehouseman does not assume any direct or unusual responsibility for loss or damage to the goods.

In other words, the location and type of the warehouse building affects the risk which the owner of the goods naturally assumes. According to a recent higher court, if the warehouseman removes goods to another location, without consent of the owner, the warehouseman assumes full responsibility, and an insurance company which insured the merchandise is relieved automatically from liability. This is so although the warehouse receipt contains a protective clause which limits the warehouseman's liability.

For example, in B—— v. F——, 35 Atl. (2d) 180, it was shown that a warehouseman accepted goods for storage, and issued a receipt limiting his liability to $50 in case the goods were destroyed by fire. An insurance policy company issued an insurance policy to the owner of the goods which insured the goods while in storage. Thereafter, without consent of the owner the goods were removed to another warehouse located across the street from the main warehouse building. This warehouse burned and destroyed the stored goods.

The owner of the goods sued both the insurance company and the warehouseman. The latter contended that he was not liable for loss by fire because the warehouse receipt issued by him expressly disclaimed liability for such loss. The insurance company contended it was not liable because the warehouseman had moved the goods to another location without notifying the insurance company, of it, or the owner of the goods.

In relieving the insurance company from liability and in holding the warehouseman solely liable for the full value of the destroyed goods the higher court said:

"The defendant (warehouseman) was entrusted with the goods for a particular purpose and to keep them in a particular place. He took them to another, and must be responsible for what took place there . . . The contract of bailment called for storage at a particular place and the bailee (warehouseman) breached his contract by removing the goods to another place . . ."

When is a warehouseman and when is he not liable for moth damage to stored goods?

A reader asked this question: "Is either a written or a verbal agreement valid on the part of a warehouseman, to mothproof goods?"

According to a late higher court decision the answer is yes.

For illustration, in A—— Transfer and Storage Co. v. G——, 143 Pac. (2d) 617, testimony proved that the owner of household goods called a common carrier which agreed to pack and crate his goods. The goods were stored with the N—— Storage Co. since A—— had no storage facilities. Several months later N—— Storage Co. delivered the goods to the owner who discovered that the rugs and carpets and other items were badly motheaten. The owner of the goods sued both the N—— Storage Co. and the common carrier for $1,468 damages. It was proved to the satisfaction of the jury that before the goods were accepted for storage an official of the common carrier had verbally agreed to "mothproof" the goods. In holding the two companies jointly liable for full damages to the goods, the higher court said:

"The measure of damages for the damage or destruction of household property is not the market value but is the value to the owner based upon the actual money lost sustained by such damage or destruction, excluding any sentimental value."

What is the law regarding warehouse receipts issued contrary to statutory requirements?

According to a late higher court decision the holder of a warehouse receipt issued in violation to valid laws has nothing of value.

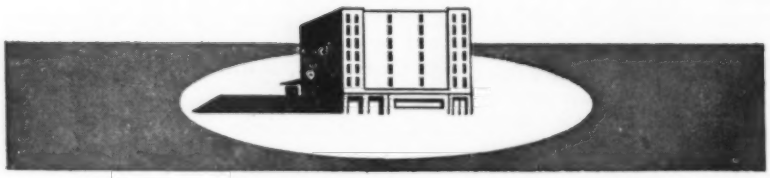
For illustration, in The F—— State Bank v. C—— Surety and Insurance Corp., 228 Fed. Rep. (2d) 654, the higher Federal court gave this law:

"Any and all persons who have accepted warehouse receipts from a warehouseman and the receipts have been issued contrary to statutory requirements, the holders of these receipts cannot expect any compensation."

For comparison, see K—— v. G—— & C——, Inc., 144 Kan. 95, 108 A.L.R. 918. This court said:

"One who accepts receipts from the warehouseman which have been issued contrary to the state statutory requirements, may not be heard to say that he had no notice that there was no compliance with the provisions of the Act. The person who accepts it is bound to know that it must recite that the warehouseman is the owner, either solely or jointly or in common with others, and he must be held to know that the receipt which he accepts is registered or unregistered."

Warehouse SPOTLIGHT



Canadian Warehousemen Form New Movers' Conference

Canadian Warehousemen's Association has announced the formation of a new Movers Conference, membership in which will be available to all subscribers.

Present CWA members are eligible for membership in the conference without additional cost. All licensed household goods highway carriers and van lines will be eligible as subscribers.

Immediate attention is being centered on reciprocity, ethical practices, and insurance.

The chairmanship and vice-chairmanship of the Movers Conference is vested in the present chairman and vice-chairman of the CWA Household Goods Division. They are, respectively, W. J. McKeag, of Security Storage Co. Ltd., and R. T. Middup, of J. T. Middup and Son, Ltd.

Directors are Philip Martin, North American Van Lines Canada Ltd.; Walter Naylor, Allied Van Lines Ltd.; J. M. Atwell Hill the Mover (Canada) Ltd.; Ivan Sparks, United Van Lines (Canada) Ltd.; and J. N. Shortliffe, MacCosham Van Lines.

—DA—

East Texas Movers met recently in Kilgore at which time new officers of the association were installed. James Starkey, of Wilson Transfer and Warehouse, is the president.

The Executive Committee of the Missouri Warehousemen's Association, Inc., met recently at the Hotel Muehlebach, Kansas City, and completed plans for the association's fall meeting. The sessions will run October 25-27 at the Muehlebach.

—DA—

Northwest Warehousemen Elect Dwyer President

William D. Dwyer, of Ballard Storage and Transfer Company, St. Paul, was elected president of the Minnesota-Northwest Warehousemen's Association during its 47th Annual Meeting. Other officers elected at the meeting include George D. Anderson, Colonial Warehouse, vice president; William B. Carlson, Central Warehouse Co., secretary; and Lou H. Lackore, Terminal Warehouse Co., treasurer.

Directors, each elected for three years, are Anderson; George W. DuBois, Minneapolis Terminal Warehouse; William D. Dwyer, and Lou H. Lackore. Lou G. Schall was elected to complete the unexpired term of the late Hans F. Aude.

—DA—

The Southwest Warehouse and Transfermen's Association is planning its annual convention for October 14-16 at the Shamrock Hotel, Houston.

Warehouse Briefs

Howard Terminal, Oakland and Sacramento, Calif., has purchased **El Dorado Motor Transportation Co.** from Mr. and Mrs. Louis Sposito.

City Transfer and Storage Co. has purchased an additional warehouse in San Francisco which will serve as a **Record Storage Center.** Four stories high, it contains 34,000 sq ft.

Arrow Transfer and Storage Co., Rome, Ga., has been appointed an agent of **Aero Mayflower Transit Co.**

North American Van Lines, Inc., has extended its overseas household goods service to Italy. Designed for use of military personnel, the operation will use conex boxes on military transport ships.

An employee retirement plan, paid entirely from company funds, has been announced by **Wheeling Transportation, Inc.**, Jersey City, N. J. It was taken out with the Prudential Life Insurance Co. of America on a group annuity contract.

New agents appointed by **North American Van Lines, Inc.**, are: **Harrisburg Transfer Co., Inc.**, Harrisburg, Ill.; **Phil's Transfer and Storage Co.**, Los Angeles, Calif.; **Winecoff Transfer and Storage Co.**, Concord, N. C.; **Bragg Moving and Storage, Inc.**, Wilmington, N. C.; **G. and H. Moving and Storage Co.**, Gallatin, Tenn.; **Bruce and Son Moving and Storage**, Borger, Tex.; **Pompany Moving and Storage Co.**, Pompano Beach, Fla.; **Sykes Transfer Co.**, East Point, Ga.; **AAA Moving and Storage, Inc.**, Valdosta, Ga.; **F. L. Castline, Inc.**, Gardner, Mass., and **New Hardware and Furniture Co.**, Clintonwood, Va.

Lawrence Warehouse Co., San Francisco, has opened a branch office in Memphis, Tenn. James A. Davis is branch manager.

Bekins Moving and Storage Co. has recently completed a $400,000 reinforced concrete warehouse at Seattle, Wash. It has 44,000 sq ft of storage area.

The Summerson Storage Co., Philadelphia, has purchased the business and warehouse of the **Monarch Storage Co.**, of that city.

Aero Mayflower Transit Co. and **The American Express Co.** have announced the extension of service to Italy. House-to-house service is available to members of the Army and Air Force.

Forty safety award winners are among the record number of public refrigerated warehouses participating in the annual safety survey of the **National Assn. of Refrigerated Warehouses.**

John Mercer Terminal Warehouse Co. has added 40,000 cu ft of cooler space to its facilities in Miami, Fla. In addition, a 7-ft chain mesh fence has been erected to create outside storage area.

(*Please Turn to Page* 98)

WARD WAREHOUSING CORPORATION

Altoona, Pa.

protects its property *Automatically*... gets better FIRE and BURGLARY protection and....

SAVES $6,000 A YEAR



Our spacious new warehouse was designed for maximum safety of customers' goods. We chose ADT Automatic Protection because it eliminates human weaknesses in detecting fire, burglary and other dangerous conditions. Incidentally, it costs us about $6,000 a year less than other methods.

William W. Ward
PRESIDENT

"Worry-free warehousing with Ward" is a slogan that is backed up by the best in protection. The firm's 116,000 square feet of storage space is guarded *automatically* by ADT Sprinkler Supervisory and Waterflow Alarm and ADT Burglar Alarm Services.

These services include systems which signal fire or police headquarters *automatically* in case of fire or unauthorized entry. ADT provides the regular inspections, tests and maintenance required for assurance of operating efficiency.

May we show you what ADT can do for you?

Whether your premises are new or old, sprinklered or unsprinklered, there are ADT Automatic Protection Services to give greater security for property, profits and customers' goods than can be otherwise obtained, and *at lower cost.*

An ADT specialist will be glad to show you how combinations of ADT *Automatic* Services can help you. Call our local sales office if we are listed in your phone book; or write to our Executive Office.

ADT

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A NATIONWIDE ORGANIZATION
Executive Office: 155 Sixth Avenue, New York 13, N. Y.

Circle No. 25 on Card, Facing Page 83, for more information

Warehouse Spotlight . . .

(Continued from Page 96)

N. J. Movers Conference Holds 1st Annual Meeting

Fred Koehler, of Lincoln Storage, East Orange, N. J., was elected president at the first Annual Meeting of the Movers Conference of New Jersey, Inc.

Other officers are: Louis Schramm, of E. E. Leach, Inc., vice president; F. James Schneider, Summit Express, secretary; and Charles Hellrigel, of Charles Hellrigel and Sons, treasurer.

Members of the board are Vincent Visceglia, of Federal Storage; Joe Engel, Engel Brothers; Otto Offenborn, Community-Johnson Co.; Robert Schuenemann, Bell Storage; Fred Petry, Petry Express and Storage Co.; Griswold B. Holman, of George B. Holman and Sons; Everett Rogers, of A. G. Rogers, Inc.; Dan McCollister, McCollister Moving and Storage; Joe E. Quirk, Quirk Fireproof Warehouses, Inc.; John J. Regan, Mullen Storage Warehouses; J. A. Lupo, of Job DeCamp; and William Cubberley, of Manning Warehouse Corp.

—DA—

The Movers' Conference of America will hold the 1957 Movers' Annual Assembly August 11-13 at the Sheraton-Jefferson Hotel, St. Louis.

—DA—

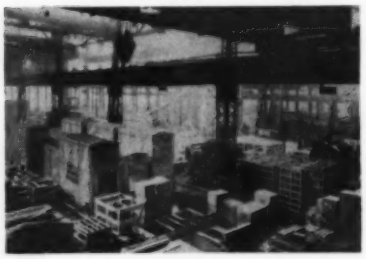
Allied Stockholders Told Of Overseas Expansion

More than 450 member-movers attended the recent three-day stockholders meeting of Allied Van Lines, held in Chicago.

President Louis Schramm, Jr., told the group of newly expanded overseas operations, a broadened public service program, and a unique incentive plan for drivers.

Reporting on business during the first six months of 1957, Schramm said Allied's 700 movers hauled 56,495 shipments interstate.

Warehouse Adds Space



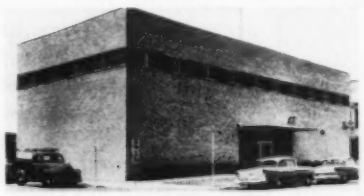
Reserve Terminals Co., Cleveland, Ohio, warehouse for industrial materials and equipment, recently added 22,000 sq ft of floor area on two levels, bringing to 218,000 sq ft its concrete floor area of unlimited weight capacity. The brick, concrete and steel structure is rated at nearly 9,000,000 cu ft

Mayflower WA Elects Officers at Convention

Lee J. Sloan, of Sloan's Moving and Storage Co., St. Louis, was elected president of the Mayflower Warehousemen's Association during a recent convention in Seattle, Wash.

Allen E. Carter, of Carter's Moving and Storage, is the secretary-treasurer and the following men were elected to the board: Albin D. Peden, Southern Warehouse Co.; Lloyd W. Beans, Sullivan Transfer and Storage Co.; Merle Stoddard, Stoddard Transfer and Fuel Company; C. B. Burkett, Burkett Moving and Storage Company, Inc.; and John H. McLaughlin, McLaughlin Moving and Storage Company.

New Central Station



American District Telegraph, electric protection firm, has moved its Houston, Tex., central station to a new building. Sharing the building with central station operations are local and district sales offices, plant department shop, and plant headquarters

Men in the Spotlight

Jay Snow—named vice president and general manager of Federal Ice and Cold Storage Co., Los Angeles.

Harry P. Sanders — elected vice president of the O.K. Storage and Transfer Co., Louisville, Ky.

Harry Whisenhunt—appointed manager of the Killeen Warehouse of Texas Fireproof Storage following the death of Robert Dunagan.

John J. Falbe—appointed United Van Lines, Inc., district manager for the Middle Eastern States.

Reed C. Smith—new manager of Peoria Service Co., Peoria, Ill.

Bernard J. McClain—becomes secretary of the Manning Warehouse Corp., of Trenton, N. J. C. **William Cubberley**—general manager of the Neptune Branch, becomes vice president.

Raymond C. Ellis—elected to the Board of Directors of Fulton Market Cold Storage Co., Chicago.

G. Fred Ross—new vice president and general manager of Binyon-O'Keefe Transport Co. **Edwin Moore**—named secretary-treasurer of the company.

Philip L. Gore—re-elected president of Security Storage Co. of Washington, D. C.

John M. Metheany—appointed to the newly-created post of manager of foreign sales for North American Van Lines, Inc.

Fred Aab—new district vice president and **Warren Weber**—new director of the West Central District, Mayflower Warehousemen's Assn.

William C. Warren, 3rd—elected president of Rochester Carting Co. and its two subsidiaries, Rochester Truck Rental and Rochester Storage Warehouses, Inc.

R. H. Powell—new general manager of Weeks Moving and Storage at Rockville Centre, N. Y.

—DA—

Gund Re-elected to Presidency Of United Van Lines, Inc.

John K. Gund, of Lakewood Storage Co., Cleveland, was re-elected president of United Van Lines, Inc., at the Annual Stockholders Meeting in St. Louis.

Other officers are: William A. Strauss, Brooks Transfer and Storage Co., first vice president; Griswold B. Holman, secretary.

Directors elected are Carlos Hogue, Albuquerque, N. M.; Oliver Skellet, St. Paul Minn.; C. F. Stilwell, Springfield, Pa.; D. P. Hanenburg, Chicago; Ivan Sparks, Canada; Richard T. Christmas, Jr., Pasadena, Calif.; and George H. Martin, Charlotte, N. C.

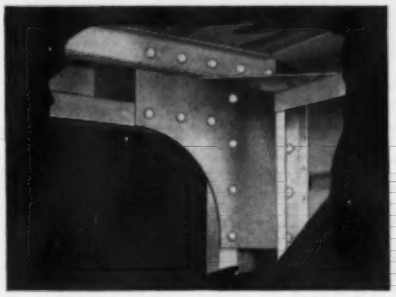
Protect Your **PROFIT** *Margin . . .*

ELIMINATE DEADWEIGHT

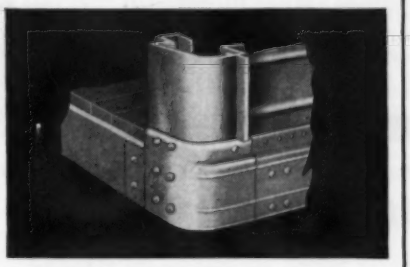
UP TO 1,500 lbs. Less Deadweight In Brown *Aluminum* Bodies



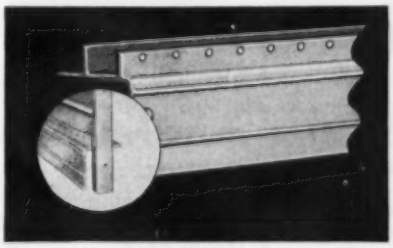
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CORNER GUSSETS . . . An integral part of the Brown Aluminum Body design. The longerons, headers and corner posts are interlocked and ruggedly gusseted to provide the greater structural strength to withstand greatest over-the-road strains and stresses—eliminate wracking.



RUGGED CORNER CASTINGS . . . Another exclusive Brown Aluminum Body feature. Heavier, sturdy wrap-around design that is wrackproof. In assembly with Brown-engineered and "stress" designed rigid corner posts, corner casting withstands the greatest corner impact . . . eliminates costly corner post repairs and replacement.



SUPERIOR RUB RAIL CONSTRUCTION . . . Brown's construction method excludes any possible electrolytic action at all critical points. Eliminates corrosion—the chief cause of deterioration in many types of body construction. Another exclusive Body Assembly feature is Brown's aircraft quality "stressed-skin" riveted construction with rolled Z-Stiffeners which add great strength.

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Brown Lightweight Aluminum Bodies eliminate deadweight hauling . . . weigh up to 1,500 pounds less than other type bodies. You'll save on gas and oil . . . speed up delivery . . . take a load off the truck's engine . . . save on tire wear, as well as brakes. Brown custom designed parts are mass-produced to give you the advantage of factory-quality, production pricing. Fully-equipped, independent Brown Dealers have the body building facilities and service to aid you . . . right in your own community. So, for lowering your operating and maintenance costs . . . increasing efficiency . . . standardize on Brown Aluminum Cargo Van Bodies for increased PAYLOAD PROFIT! Yes, whatever your hauling problem . . . dry freight or perishables—Better Buy Brown Aluminum Bodies, your best buy!

Standardize . . . Modernize . . . Economize

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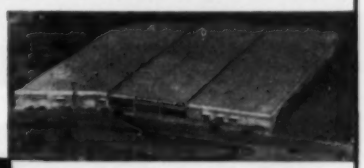
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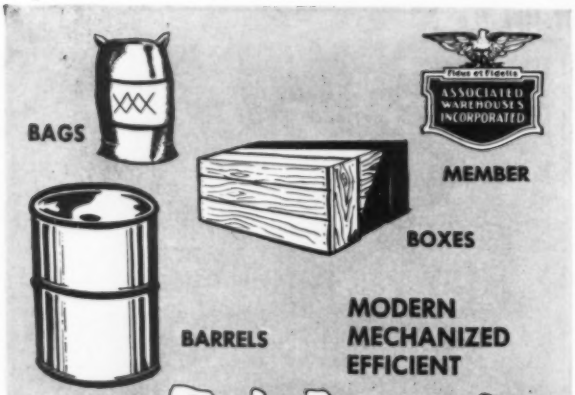
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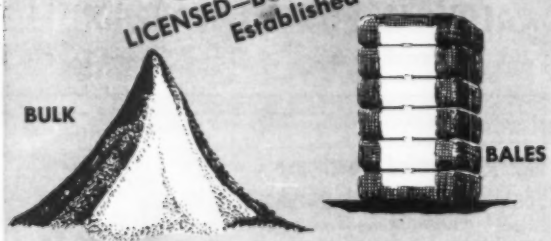
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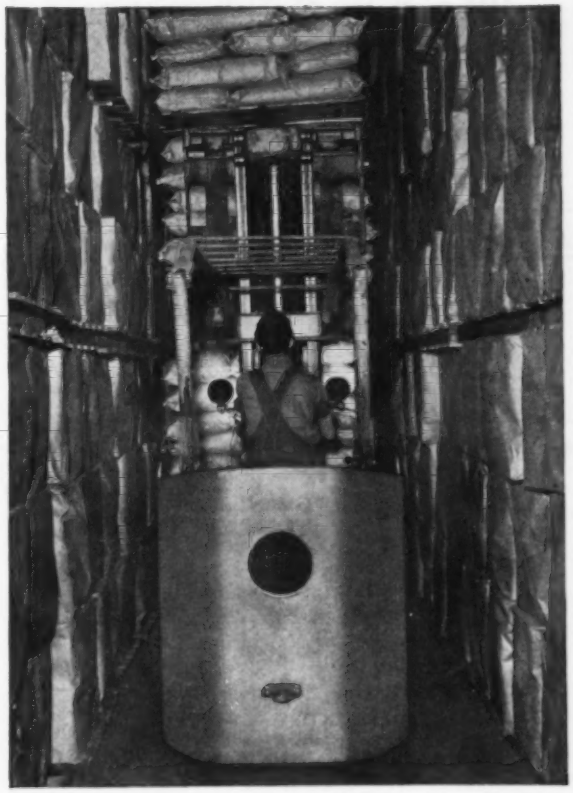
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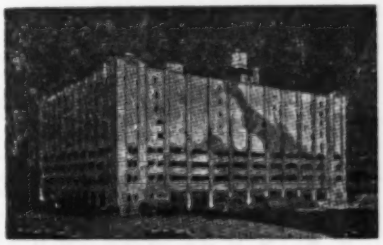
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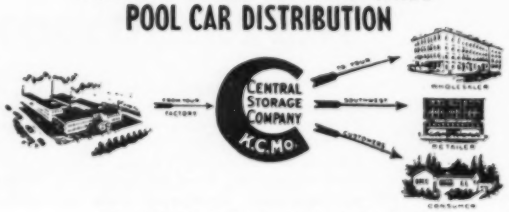
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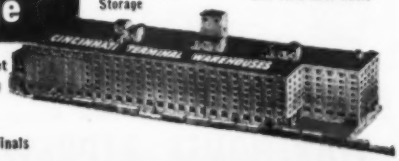
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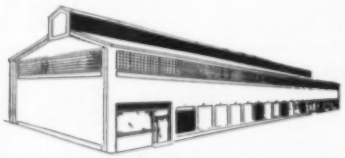
Established 1865

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Merchandise Storage — *Storage in Transit*
Direct Siding-Penna. R.R. and Reading R. R.
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For Personalized Warehousing
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PRR 7 car siding
150,000 sq ft. One floor



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Complete storage, distribution and drayage service.
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B. & O. and P.R.R. SIDINGS
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Economy — Experience — Service — PRR Sidings
Specialized!—Storage-In-Transit!—Now!—Through Rates Protected
From West to Eastern Seaboard, N. Y., New England and Vice Versa
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Williamsport is Closer in Miles and Minutes to The Greatest U. S. Market — 200 Miles Radius — 30% U. S. Population

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Modern Concrete Warehouse. 100,000 Square Feet of Storage Space.
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POOL CAR DISTRIBUTION & STORAGE IN TRANSIT
Located on the Frisco-Illinois Central & Missouri Pacific & L&N with Reciprocal Switching

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Established 1894

671 to 679 South Main St., Memphis 2

Insurance Rate $1.20 per $1,000 per Annum. Distribution a Specialty Merchandise storage, dependable service, free switching. Local cartage delivery. Illinois Central and Cotton Belt Railway tracks. Automatic sprinkler. A.D.T. watchmen.

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Storage (Mdse.)—Pool Car Distribution—Local delivery service—Office Space. In the heart of the wholesale district and convenient to Rail, Truck and Express terminals. Eight car railroad siding—(N.C.&ST.L. and L.&N.)—Reciprocal switching A.D.T. Service. Represented by Distribution Service, Inc. Member of A.W.A. and M.W.A.

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LOW INSURANCE RATES

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Automatic Sprinkler System—Centrally Located

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Modern Fireproof Construction—Office Displays, Manufacturers, and Warehouse Space.

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"Bankers of Merchandise" "Service With Security"

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Lowest Content Insurance Rate

Fireproof Storage of Household Goods, Autos & Merchandise, State and Customs Bonded. Private Trackage—T. & P. and So. Pac. Rys. Pool Car Distribution—Motor Truck Service.

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Our modern Centrally located warehouse is completely equipped to serve you with over 200,000 sq. ft. of merchandise and household storage space

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Since 1875 — **BINYON-O'KEEFE STORAGE CO.** — Since 1875

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Associated with Distribution Service, Inc.

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Complete Mechanized Service

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Centrally Located to Wholesale Trade

Adequate Truckage, Doors and Docks

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"KING OF THE MOVERS"

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NEW MODERN ONE STORY BUILDING Completed June '55



UNITED STATES COLD STORAGE

- MERCHANDISE STORAGE
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AMERICAN WAREHOUSES, INC.

P. O. Box 1772 • 1918 Collingsworth • Phone: CApitol 8-6381
One Floor—Car Level—330,000 Square Feet—Fully Sprinklered. A.D.T.—Adequate Truck and R. R. spots. Member A.W.A. & S.W.T.W.A.
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Our new warehouse is 800 feet long by 250 feet wide with car spot on the Mo. Pac. R.R. for 20 cars at one time. Plenty of truck dock space with wide area to maneuver trucks and trailers.

This modern one-story property with high ceilings and unlimited floor load capacity is fully equipped with modern materials handling apparatus.

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And For Pool Car Distribution

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Merchandise and Household Goods Storage

Pool Car Distribution

Sprinklered—A.D.T. Watchmen

Shipside and Uptown Warehouses

A Fisher G. Dorsey Interest

Member of N.F.W.A.—State and Local Ass'ns.

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Commercial Storage

BONDED

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29 Years Warehousing Experience

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TEXAS SERVICE WAREHOUSE COMPANY

702 & 710 Pine Street

Private Rail Sidings — All Houston Railroads

General Merchandise — Storage and Distribution

Sprinklered Throughout A.D.T. Supervisory Service

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MOST MODERN FACILITIES IN SOUTHWEST

OFFICES YEAR AROUND AIR CONDITIONED

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A FISHER G. DORSEY INTEREST

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Merchandise Storage—Pool Car Distribution—Drayage Service

A.D.T. Central Station Automatic Supervisory

Sprinkler, Waterflow, and Fire Alarm Service

Watchmen, U. S. Customs Bonded, Office Space

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Division of

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3 Bonded Warehouses — 175,000 Sq. Ft.

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Represented by: Distribution Service, Inc.

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2205 McKinney Ave., Houston 1

Since 1883

Merchandise & Household Goods Storage—Pool Car Distribution—Lift Van Service—20 car lengths of trackage.

Warehouses—A.D.T. Automatic Fire and Burglary Protection

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Agent for Allied Van Lines, Inc. State and Local Assn.

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POOL CAR DISTRIBUTION

Since 1920

Spot stocks of Grocer Lines a Specialty

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Concrete Sprinklered A.D.T.

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40,000 sq. ft. floor space. Low insurance rates. Mdse. warehousing and distribution. Private railroad siding. Pool car distribution. Freight truck line. Household goods stored, packed, shipped. Van service to all states.

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Fine Warehousing Since 1911

Security Storage and Van Co.

500-530 FRONT STREET

COLLECTIONS • POOL CARS • DISTRIBUTION

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MERCHANDISE STORAGE

- Fully Mechanized and Palletized
- Pool Car Distribution
- Custom Bonded Space
- Centrally Located
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- Local Truck Delivery Service
- Negotiable Receipts

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79 Years of Continuous Service

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Agent: Allied Van Lines, Inc.

PITZER TRANSFER, STORAGE & FUEL CORP.

403-411 W. Salem Ave., Roanoke 5

Capacity 500 Cars
Private RR Siding

Automatic Sprinkler
Accurate Accounting

We make a specialty of Storage and Pool Car Distribution for Agents, Brokers and General Merchandise Houses.

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GENERAL MERCHANDISE STORAGE
POOL CAR DISTRIBUTION
FIREPROOF BUILDING
LOW INSURANCE RATES
PRIVATE SIDING N. & W. R. R.
AMPLE TRUCK DOCKS
COMPLETELY PALLETIZED

The Most Logical Distribution Point for Virginia, West Virginia, North Carolina and Tennessee

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Pacific National Warehouses in: Tacoma Seattle Spokane Kennewick Butte Helena Boise Portland Medford Eugene Vancouver Oakland San Francisco Sacramento

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SEATTLE TRANSFER CO.

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LLOYD TRANSFER CO. Pool Car Division

STANDARD WAREHOUSE CO. Storage Division

TACOMA, WASH.

Member AWA, NFWA

PACIFIC STORAGE, Inc.

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Complete facilities—5 locations including 2 on waterfront—special arrangements for serving Alaska—pool car distribution — local cartage — customs bonded — Agents Allied Van Lines.

YOU CAN SAVE MONEY BY USING TACOMA

Men in the News . . .

(Continued from Page 15)

and directors also have been re-elected.

Luke A. Murray—elected vice president, Johnson Motor Lines, Inc., Charlotte, N. C.



A. S. Glikbarg (left)—named president and chief executive officer, and **C. E. Johnson** (right) — appointed chairman of the Board, Pacific Intermountain Express Co., Oakland, Calif.

Wayne E. Lucore — promoted to traffic manager, Ringsby Truck Lines, Inc., Denver, Colo.

Alex S. Aranyos—elected president, Fruehauf International, Ltd.



Thomas E. Morris — named vice president-treasurer, Consolidated Freightways, Inc., Menlo Park, Calif.

Bernard A. Goodrich — appointed manager of press relations, American Trucking Associations, Inc., Washington 6, D. C. **Edwin H. Spencer**—named assistant to the director of public relations.

Jerome Biniasz — appointed assistant traffic manager, Kramer Bros. Freight Lines, Inc., Detroit.

—Rail

Louis G. Stahl — named assistant traffic manager, Union Pacific Railroad, Omaha, Neb. **Harry F. Brevoort** —appointed assistant traffic manager, New York, **William James**—appointed chief, Pittsburgh. **William V. Layman** —appointed assistant traffic manager, Chicago. **Harold G. Graupner**—named general traffic agent, Chicago.

Wallace M. Snow—appointed assistant vice president, freight sales and service, New York Central System, New York.

R. C. Diamond — new superintendent, Baltimore and Ohio Railroad, Cincinnati, Ohio. **R. J. Roeder** — new superintendent,, Indianapolis.

James F. Nellis—appointed vice president and general manager, Wabash and Ann Arbor Railroad Companies, St. Louis.

Materials Handling

Paul F. Bauder—promoted to assistant general sales manager, Lewis-Shepard, Watertown, Mass. **A. Frank Garbarino** — promoted to division sales manager for hand equipment.

Chester C. Lonsdale—named superintendent, Hallowell Division, Standard Pressed Steel Co., Jenkintown, Pa.

Monroe G. Smith—named general manager, Exide Industrial Division, Philadelphia.

Paul P. Suiter—appointed Chicago regional manager, Lamson Corporation.



Robert L. Smith (left) — elected secretary and treasurer; **Frank M. Docauer** (center) — elected assistant secretary; **Fenton O. Richards** (right) — elected controller, The Frank G. Hough Co., Libertyville, Ill.



H. R. Trees (left)—appointed general manager, Automotive Div., Electric Storage Battery Co., in Cleveland. He succeeds **D. N. Smith** (right) —who moved to corporate headquarters in Philadelphia to take on increased responsibilities.

Robert C. Cragg—elected to the position of executive vice president, K. W. Battery Company, Irvington, N. J.

Lester D. Martin—new vice-president, Oster Manufacturing Co., Wickliffe, Ohio.

(Resume Reading on Page 23)

GREEN BAY, WIS.

GREEN BAY WAREHOUSES, INC.

203 Columbus Building — Green Bay, Wis.

General Merchandise Storage & Distribution

Located on G. B. & W. R. R. Co. Lines

Phone HEmlock 5-6164

W. F. KERWIN, *Pres.* — W. F. KERWIN, JR., *VP. & Mgr.*

GREEN BAY, WIS. — ESTABLISHED 1903

LEICHT TRANSFER & STORAGE CO.

1401-55 S. STATE ST. • GREEN BAY • WIS. •

MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION

- Merchandise Storage
- Pool Car Distribution
- Transit Storage
- Household Goods Storage
- Heated—Unheated—Yard Storage
- Waterfront Facilities
- Stevedore Services
- U. S. Customs, State and Public Bonded
- 70 Car Track Capacity
- Modern Handling Equipment
- Private Siding on C&NW CMStP&P, GB&W Lines
- Reciprocal Switching all lines

Complete local and over-the-road truck services with 70 units of all types of equipment, including low-bed trailers, winches and cranes.

AERO-MAYFLOWER MOVING AND STORAGE

MADISON, WIS. — 2302 Darwin Road — Phone Cherry 4-6255

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MODERN ONE STORY OPERATION

MILWAUKEE, WIS. — Private Phone: BRoadway 1-8930

AMERICAN WAREHOUSE CO.

General Office—525 E. Chicago St.

3 Clean, Well-Equipped Warehouses

Pool Car/Truck Distribution Specialists

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Customer Preference—Our Best Reference

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3rd Ward Dist.

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3119 W. Mill Rd. — Milwaukee 9, Wisc.

Warehousing — Distribution — Private Rail Siding

Modern One Story Building

HANSEN STORAGE CO.

124 N. JEFFERSON ST.

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WISCONSIN'S LARGEST AND MOST MODERN

AFFILIATE — HANSEN STORAGE OF MADISON INC.

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A SOLID BLOCK OF RESPONSIBLE WAREHOUSING

ASSOCIATED WAREHOUSEMEN'S INCORPORATED

ALSO LEASE RENTALS OF WHOLE BLDGS. OR PARTS

SO. WATER & E. BRUCE STREETS

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Cooler, Freezer and General Merchandising Storage

Deep Water Dock, Private Siding

on C.M.St.P. & P.R.R.

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General Merchandise Storage

LOW INSURANCE RATES

POOL CAR DISTRIBUTION

Licensed and Bonded. Private Siding Chicago & Northwestern R.R.

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TERMINAL WAREHOUSES LIMITED

1,000,000 Square Feet

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Refrigerated Storage	Field Warehousing
Office Space	Cartage
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Fireproof	Lowest Insurance

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TORONTO STORAGE CO. LIMITED

(Established 1916)

2/16 Berkeley St. — Toronto 2, Ont.

General Merchandise—Bonded & Free

1,500,000 cubic feet. Sprinklered.

Private Siding. Efficient Loading Facilities.

Company Owned Trucks.

Members of Canadian Warehousemen's Association.

"Our Clients do the selling—we do the rest."

MONTREAL, QUE.



ST. LAWRENCE WAREHOUSE INC.

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200,000 SQ. FT. OF MODERN FIREPROOF SPACE LOCATED IN THE EXACT CENTER OF THE CITY OF MONTREAL

Canadian Customs Bonded. Private Siding — 8 Car Capacity — Free Switching — All Railroad Connections.

Represented by

ALLIED DISTRIBUTION, INC.

CHICAGO, ILL. — NEW YORK, N. Y.

Circle 28 on Card Facing Page 83

The BECO

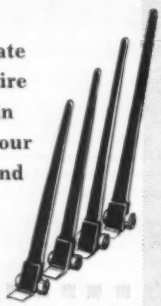
Super Lift

LEVER DOLLY

- Why Pay More!
- Guaranteed
- Stronger
- Safer



- For immediate shipment, wire phone, or pin this ad to your letterhead and mail to:



BECO - Bettendorf, Iowa

Four Models ● Metal or Rubber Wheels

CLASSIFIED ADVERTISING

RATES: 20¢ a word—$5 minimum

FOR RENT

STORAGE WAREHOUSE OR TRUCK TERMINAL—Bristol, Pa. 85,000 ft., high ceilings, heat, sprinklered, cranes, 10 acres of land, PRR sidings, Delaware Valley Interchange Turnpike. LAWRENCE SHERMAN, P.O. Box 476, Elizabeth, N. J.

FOR SALE

ASPHALT, ACID AND PETROLEUM TRAILERS—Various sizes. Contact GINGERICH at 1026 S. Riverside Drive, Iowa City, Ia. Phone 8-3691 or 4719.

SALE OR LEASE

TENNESSEE—In city with metropolitan population of over 50,000, industrial building, all brick ideally situated in business district, located on individual railroad siding including freight shed, 4½ stories described as follows: Three of the stories are above the front of the store, basement under entire building. In the rear a sub-basement under rear half of building. Because of location on a hill, the sub-basement in the rear is at ground level. Completely sprinklered. Two electric elevators. Three refrigerated rooms. 40x25 set for individual temperature control. Offered either for lease or as an outright sale, or on a lease-purchase plan. Write Box 227, DISTRIBUTION AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

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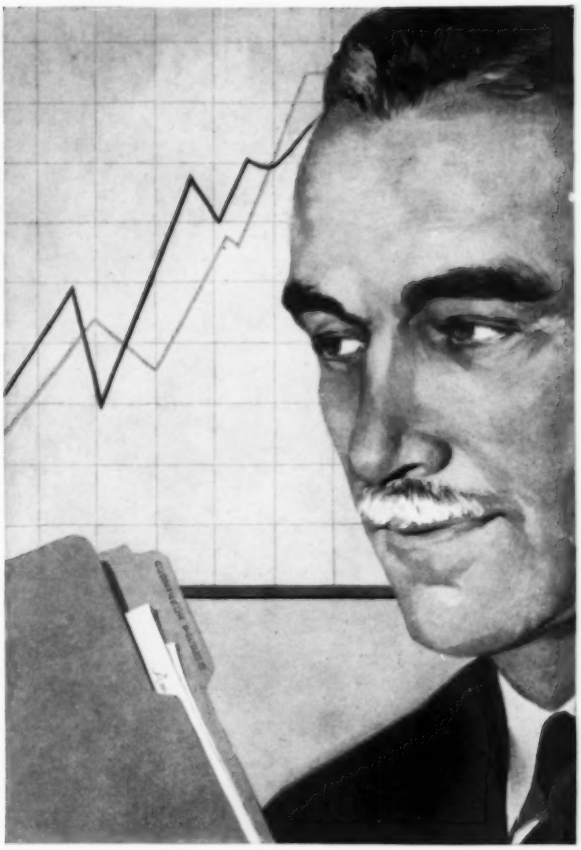
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Clipper Cargo pays for itself!

Shipped by air, vital machines helped earn profits 3 weeks earlier than if shipped by boat . . . helped capture a market.

Time is nearly priceless—when you must get into production *fast* to catch sales . . . increase your market share.

Faced with this situation, an American manufacturer turned to Clipper* Cargo. Needed machines were flown from Europe in *a matter of hours*. Pressed into immediate use, these machines paid for their air passage in a brief 3 weeks—*the period when production would have stopped had the machines been in slow surface transit.*

Here are other advantages you enjoy with Clipper Cargo:

On-time deliveries—Dependable, regularly scheduled *all-cargo* flights . . . plus tons of cargo capacity available on *daily* passenger flights. For example, every week across the Atlantic—12 all-cargo and 154 cargo/passenger flights.

Lower costs—achieved by lighter packing. Many items, like the machines above, need hardly any! Lower insurance rates, less handling, less transshipment, less chance of pilferage, less stock inventory tied up in warehouses.

Space may be reserved in advance—even machines can have a reservation.

More capacity—Cargo Clippers easily handle the big, special machines above; can carry up to 11 tons.

More experience—Pan American carries more overseas cargo than any other airline in the world.

A Free Cost Analysis—to show how Clipper Cargo can save you money.

Over 600 offices around the world.

For FREE booklet, "There's Profit in the *Air* . . . with Clipper Cargo," call your PAA District Sales Manager or write to Pan American World Airways, P. O. Box 1790, New York 17, New York.

*Trade-Mark, Reg. U. S. Pat. Off.

World's most experienced airline

PAN AMERICAN

FLIES MORE CARGO OVERSEAS THAN ANY OTHER AIRLINE

Automatic DOCKER...THE LIFT TRUCK THAT WORKS WHERE OTHERS CAN'T



Shortest in its class... unmatched for easy maneuvering...and for efficient low-cost operation

This extra-compact, more maneuverable truck offers more advantages than any other of its type for materials handling in any industry. It is especially desirable where space is limited...works with ease inside trailers and in aisles, with or without pallet racks, too narrow for other similar trucks.

What's more, direct comparison shows clearly how definitely superior the DOCKER really is. Note the figures at right.

	DOCKER	TRUCK A	TRUCK B	TRUCK C
2000 LBS. WITH LOAD LENGTH OF	48"	30"	40"	30"
SHORTER..... OVERALL LENGTH LESS FORK	53⅞"	65⅞"	65½"	64"
SAFER-EASY ON, EASY OFF..... STEP HEIGHT	7"	13"	13¾"	13⅞"
MORE PRODUCTIVE..... LIFT SPEED F.P.M.	65	55	45	45
MORE VERSATILE..... GRADE CLEARANCE	45%	43.4%	45%	35%
MORE MANEUVERABLE... TURNING RADIUS	56"	59"	64"	57"
MAXIMUM HEAT PROTECTION. CLASS H, SILICONE INSULATED MOTORS—ALL MODELS	Yes	No	No	No

MAIL COUPON for complete specifications and FREE "COST-CUTTER" that shows how to chart and analyze your own materials handling needs.

CAPACITIES: 1000 to 4000 pounds

Factory Service Available in over 100 cities

AUTOMATIC TRANSPORTATION COMPANY
Division of The Yale & Towne Manufacturing Company
Dept. M-7, 115 West 87th Street, Chicago 20, Illinois

WORLD'S LARGEST EXCLUSIVE BUILDERS OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

Automatic Transportation Company
Dept. M-7...115 West 87th St., Chicago 20, Ill.

Please rush me complete specifications for Automatic DOCKER...also FREE COST-CUTTER Booklet.

Firm Name.....*by*.....

Address.....

City & Zone.....*State*.....

Circle No. 29 on Card, Facing Page 83, for more information